



The Brain Gauge channel

Brain Gauge: The Lab-in-a-mouse that probes brain function

Putting your brain health in your hands



 corticalmetrics



The Brain Gauge Platform

Testing, Tracking & Training Brain Fitness



Quick Check

90 seconds of testing.
Instant results.
Accurate and objective.

Testing & Tracking



Standard

Metrics that probe
deeper into specific
brain functions.

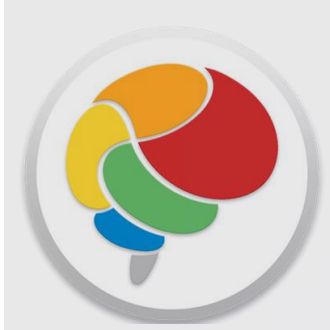
Testing & Tracking



Brain Training

Complements treatments
and promotes brain
fitness.

Training



What neurological conditions has Brain Gauge demonstrated sensitivity to?

The Brain Gauge scores have been demonstrated to be sensitive to most neurological disorders/insults (120+ publications). These include:

Neurotrauma: concussion, TBI, stroke, PTSD

Neurodegenerative disorders: aging dementias, Parkinson's, diabetes, multiple sclerosis

Neurodevelopmental disorders: autism, ADHD, OCD, Tourette's, Schizophrenia

Pain: migraine, fibromyalgia, phantom limb, chronic vs. acute

Pharmacological insult: alcohol, alcoholism and substance abuse, GABA and NMDAR agonists/antagonists, recreational drugs

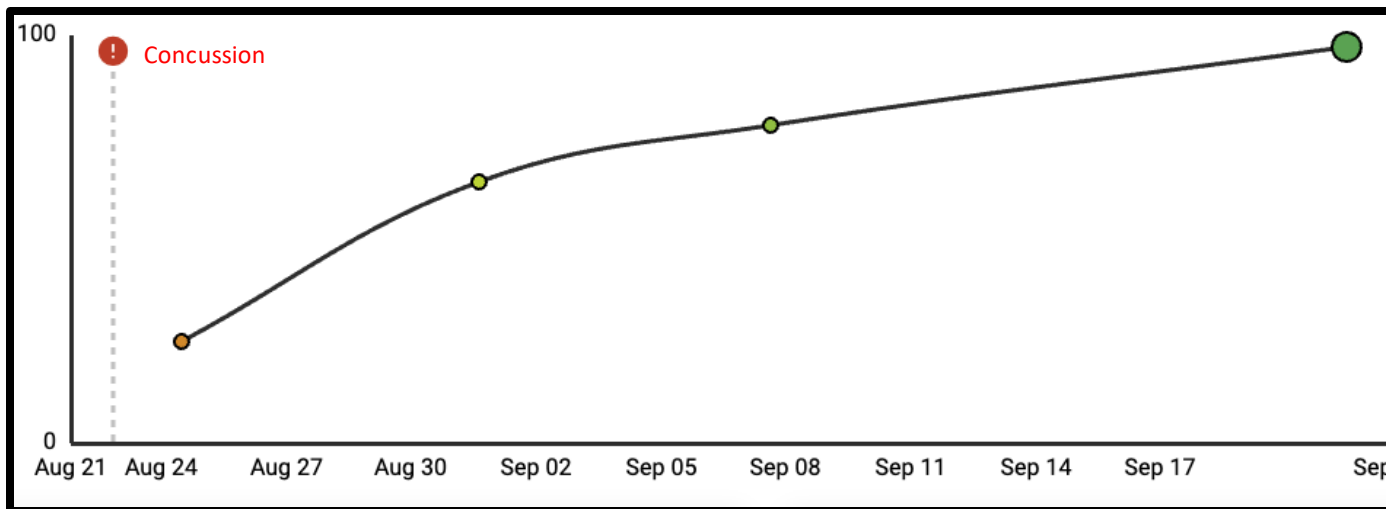
Environmental toxins: mold

Behavioral: stress, anxiety



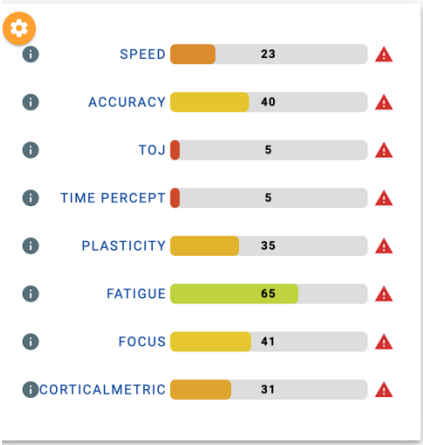
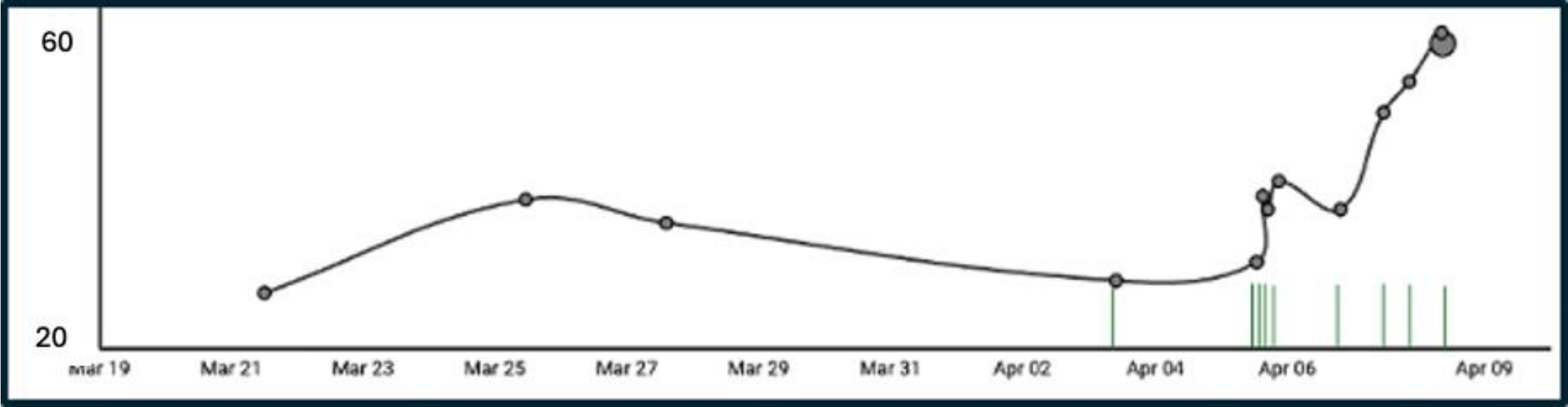
Case study: *Tracking concussion recovery – detailed metrics*

Specific metrics of different mechanisms of information processing are converted to easy to view Brain Gauge scores.



Scores can be viewed in detail and history is observed by tracking composite scores.

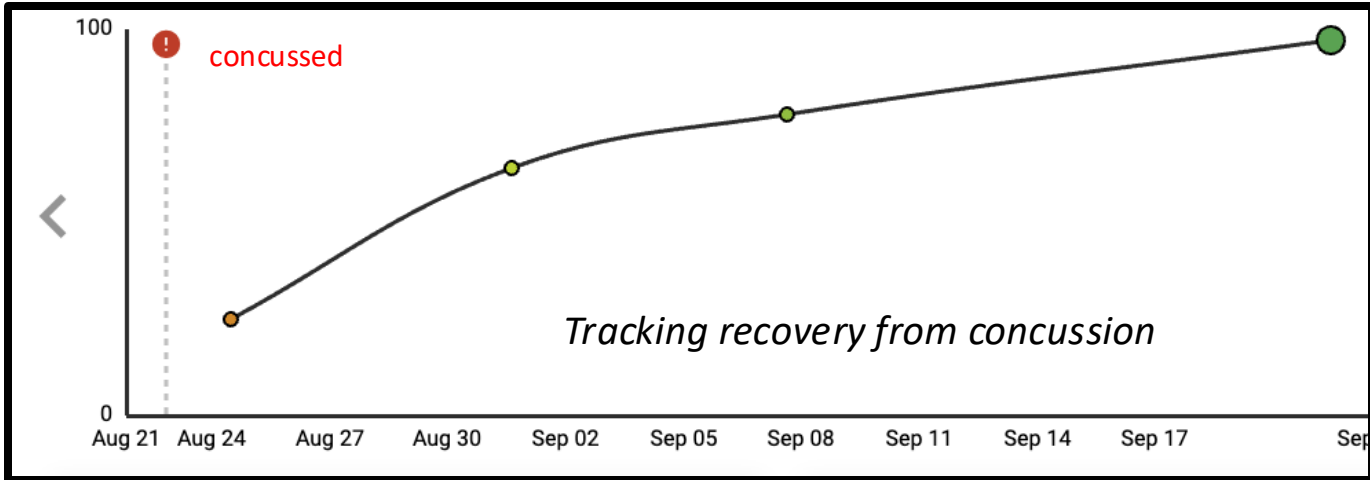
Case study: 33 yr old male with autism. 33 yr old male. Hyper-barics and Wellness Pro started in October 2023. IASIS treatment started in Nov 2024. Brain Gauge tracking started March 2025. Brain training sessions initiated (vertical green tick marks) April 2025.



Standard testing provides initial conditions and guidance for brain training

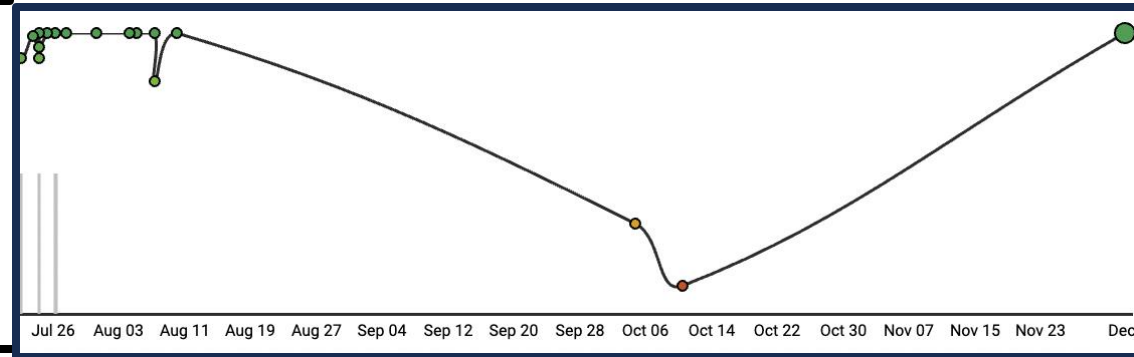


Brain training (green tick marks) complements IASIS

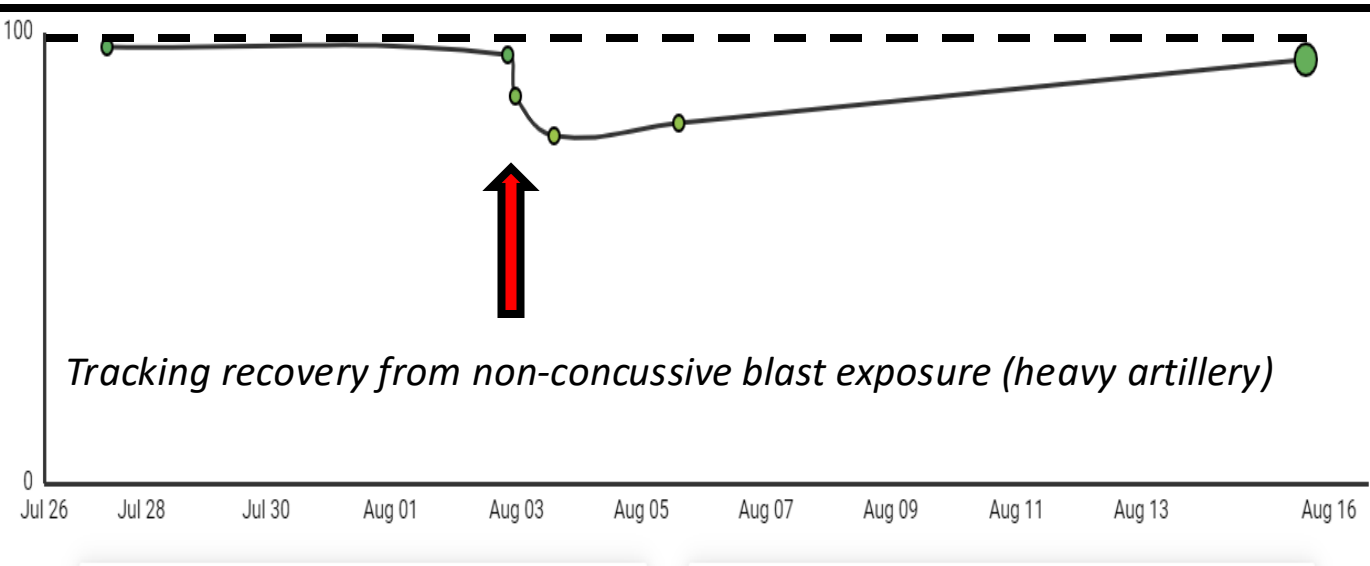


Brain Gauge **Quick Check:**
90 seconds of testing

Tracking recovery (no interventions)



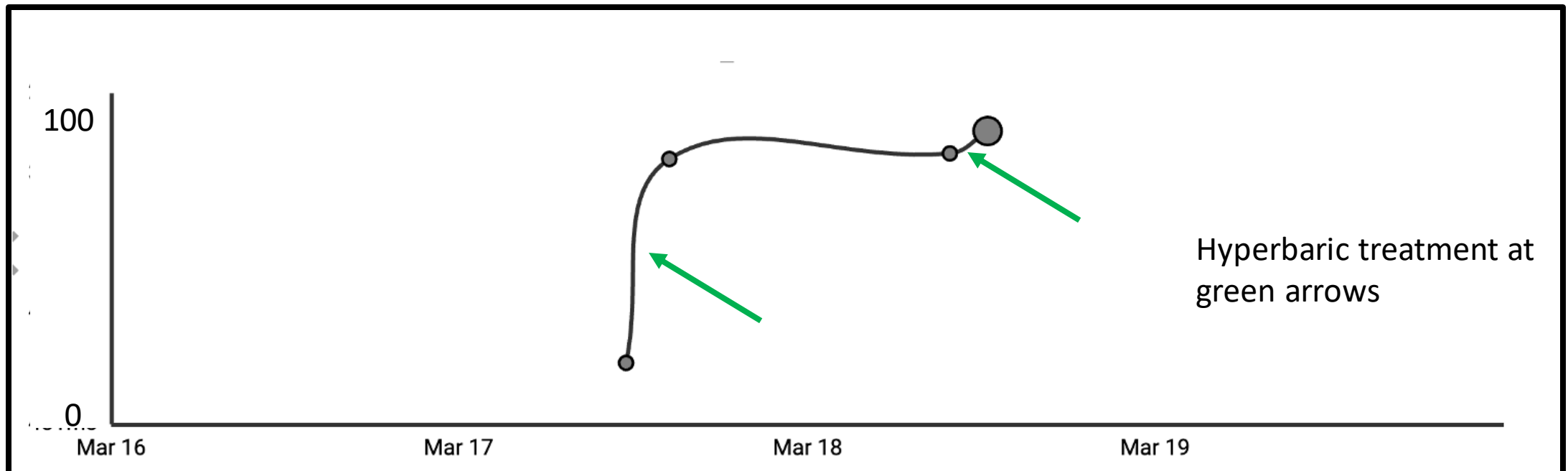
Detecting and tracking recovery from exposure to environmental toxins (black mold)



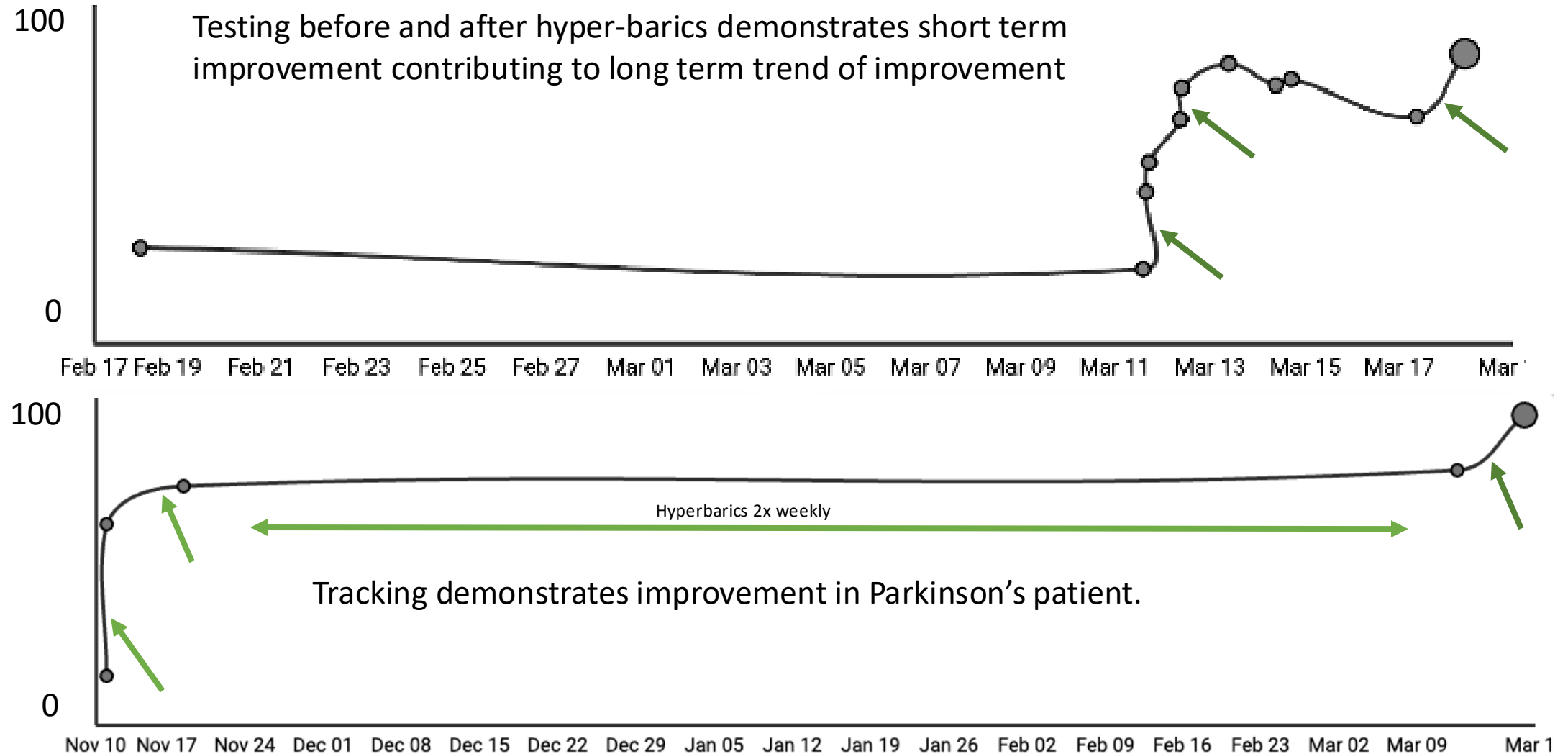


Tracking progress & treatment efficacy

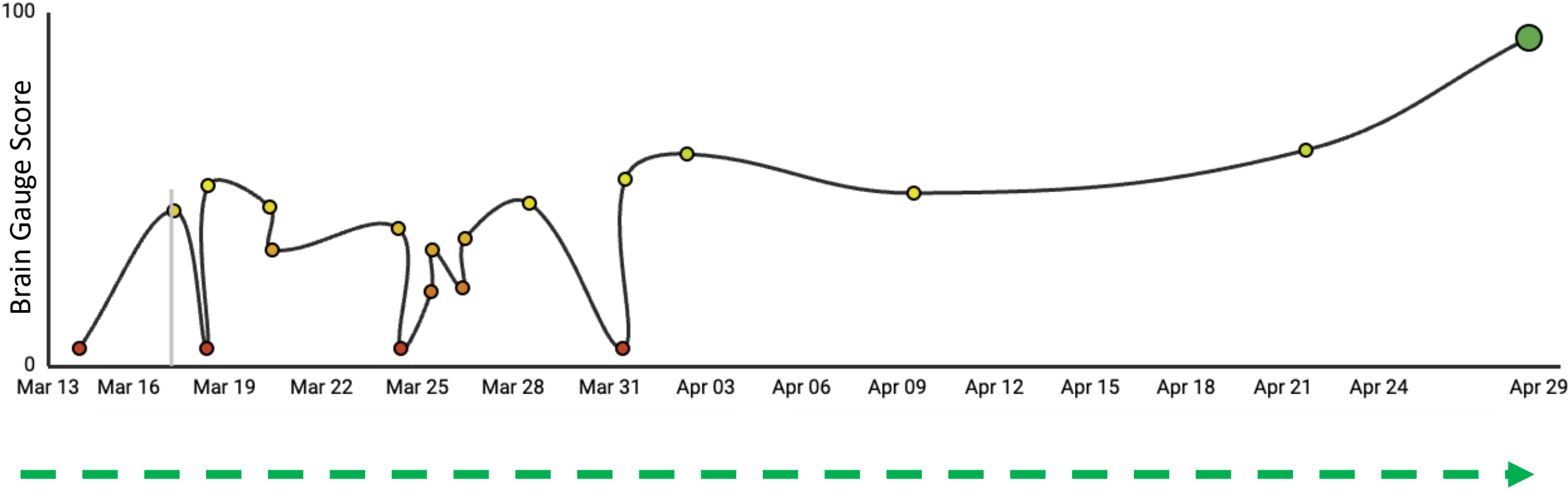
Case study: Demonstration of short-term and long-term gains from treatment.



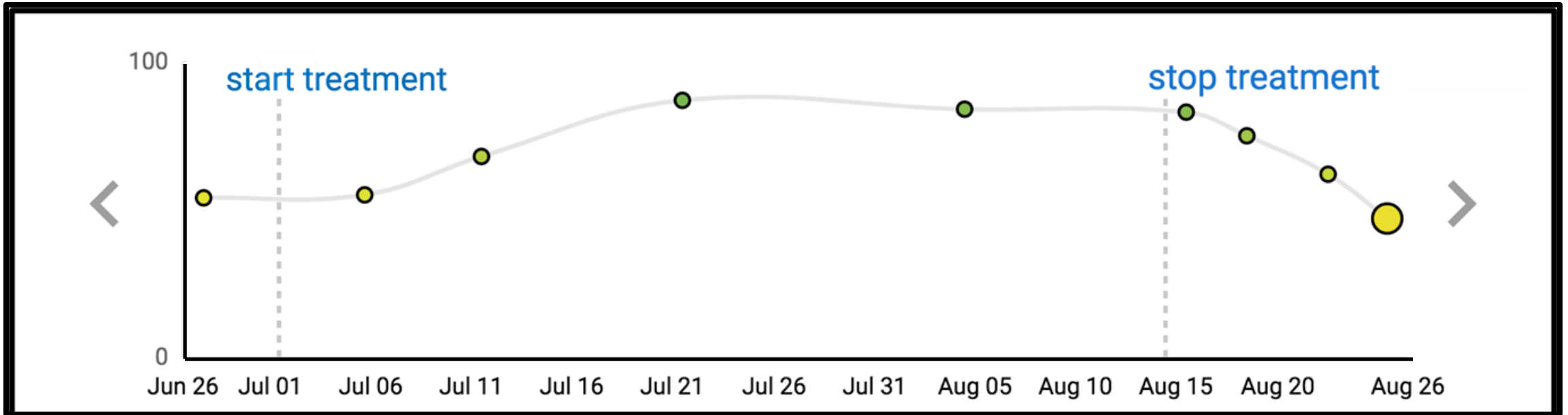
Tracking progress & treatment efficacy



77 yo male. Primary - Dementia. Started hyperbarics in December, has done 24 dives.
Started iasis in March. Has done 7 since



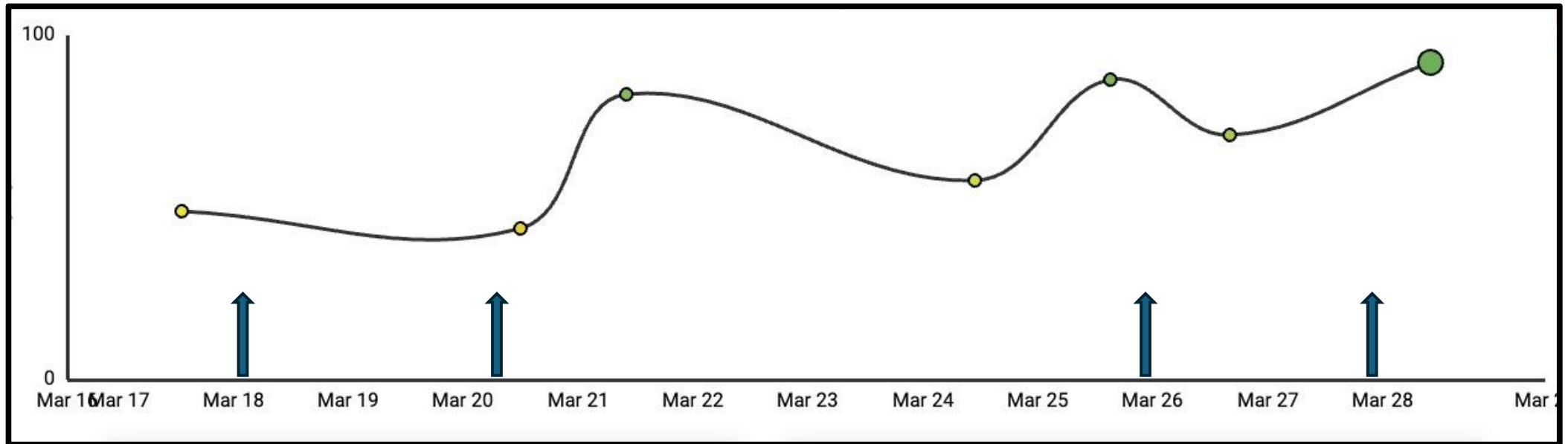
Case study: *Tracking treatment efficacy*



Female patient, age 51, initially presented to clinical care with complaints of severe fatigue. She had three prior rear-end motor vehicle accidents that extended over 3 years. Complaints included mild headache and migraine, mild dizziness and difficulty concentrating and moderate difficulty thinking. PEMF treatment was administered for 6 weeks and symptoms were alleviated. Symptoms returned when treatment was ended.

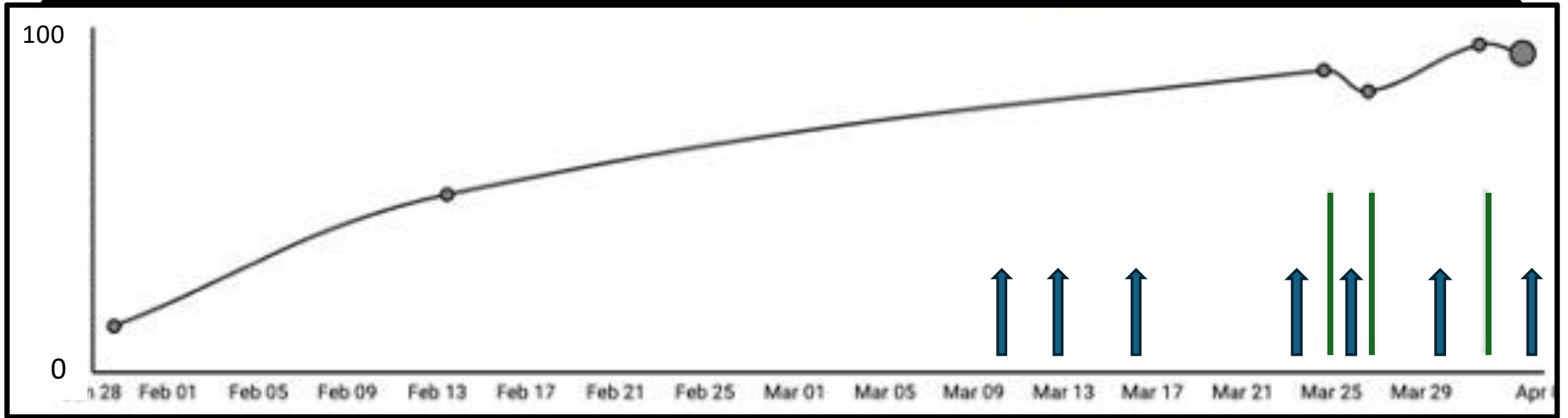


1140. 64 y/o Female. IASIS microcurrent neurofeedback treatment (arrows indicate sessions)

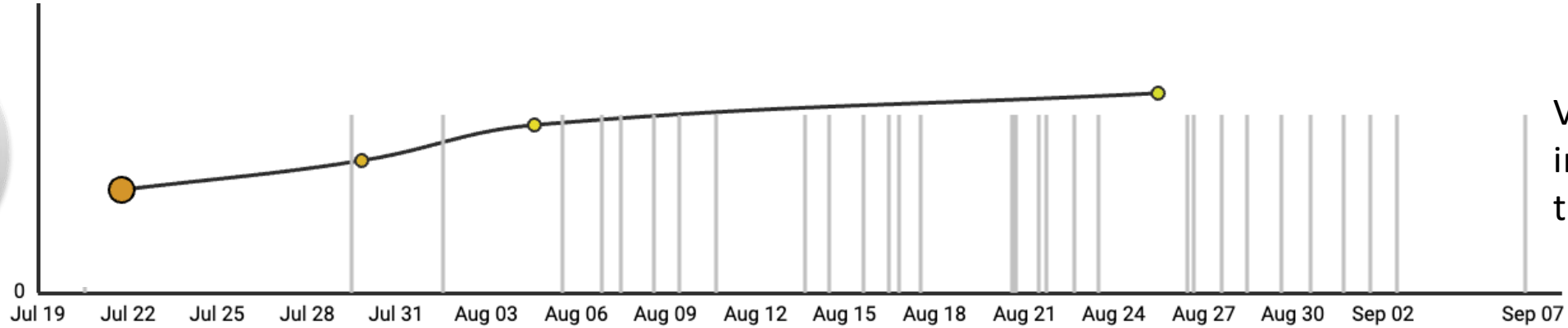


Note “dip” in score following break from IASIS treatment

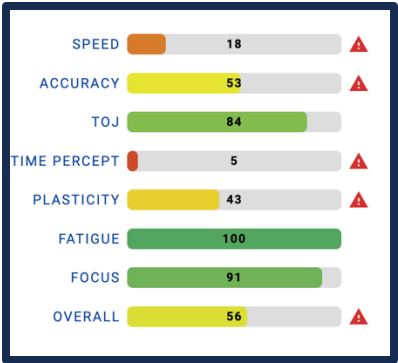
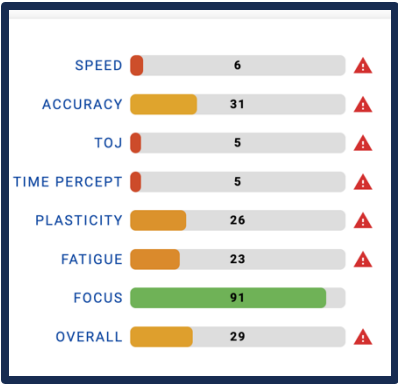
3390. 64 y/o Female. IASIS microcurrent neurofeedback
treatments (vertical arrows) + brain training (vertical tick marks)



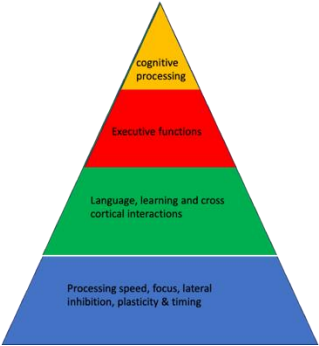
Brain Gauge brain training case study: Individual with dyslexia (late 30s) had trouble with following directions and trans positioning of letters (such as BP numbers). Employment as nurse difficult. Was told she was too slow performing her job requirements. Had cycled through several practitioners before starting brain training.



Note improvement in all scores except timing perception (due to extensive cerebellar issues).



Learn more about the Brain Gauge at www.corticalmetrics.com



Patient improvements:

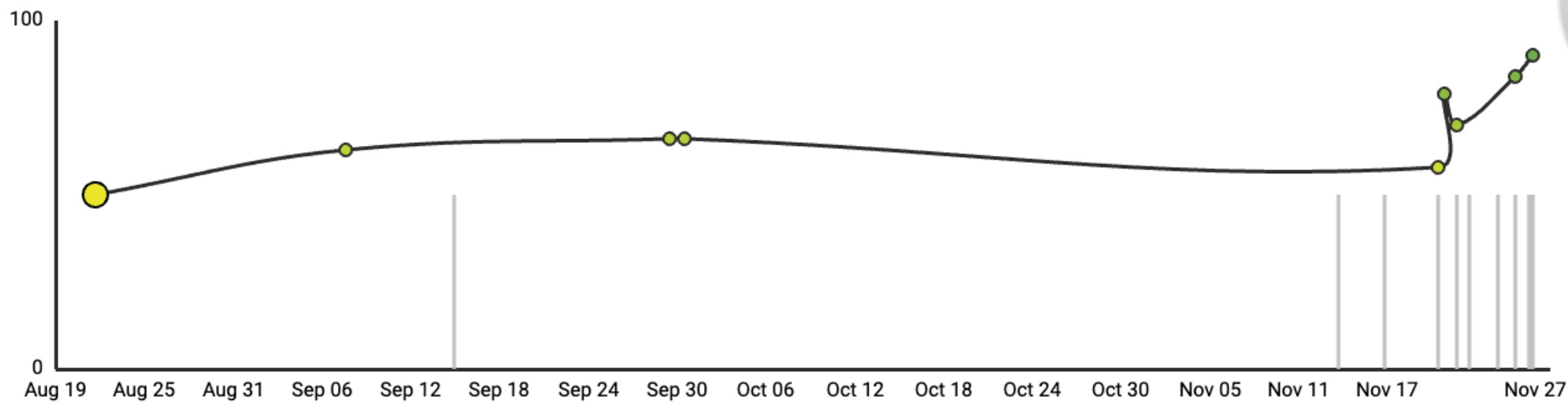
- 1. Recalls words faster
- 2. Reduced trans positioning of letters
- 3. Improved balance
- 4. Improved driving skills
- 5. Improved decision making
- 6. More confident

Brain Training improves connectivity & cognitive reserve

Brain Training complements other treatments



Case study: Change in diet plus brain training improves cognition

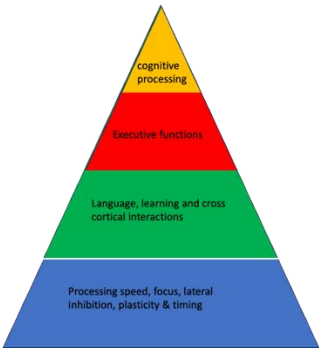


58 year old female. About 6 months ago she had sudden onset of memory loss specifically with difficulty finding words.

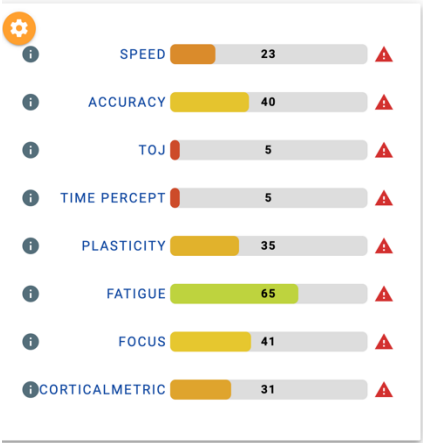
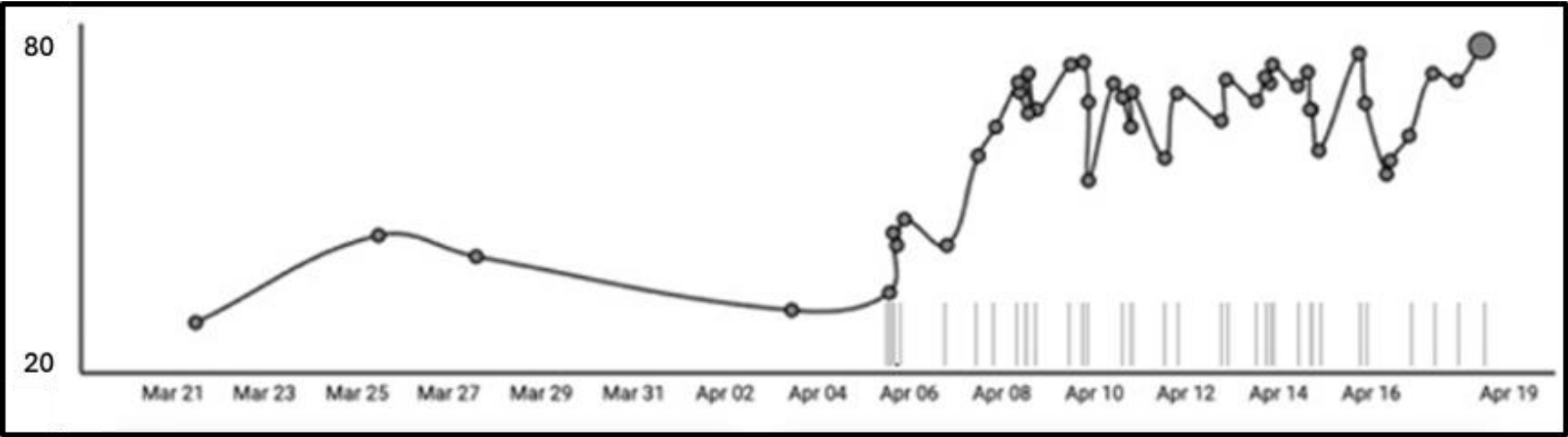
She is a long time carbaholic. Based on blood work she has insulin resistance and has high cortisol (stress related).Possibly has chronic, moderate metabolic syndrome (ie high insulin and low insulin sensitivity) causing endothelial dysfunction and she is working on a ketogenic diet program.

Brain Gauge training started months after treatment began but now patient sees significant improvements in scores and in symptoms.

Her partner reports she seems mentally quicker and brighter.



Individual with autism. 33 yr old male. Hyper-barics and Wellness Pro started in October 2023. IASIS treatment started in Nov 2024. Brain Gauge tracking started March 2025. Brain training sessions initiated (vertical green tick marks) April 2025.



Standard testing provides initial conditions and guidance for brain training



Brain Gauge **Quick Check** used to track progress

Brain training (green tick marks) complements IASIS

Before

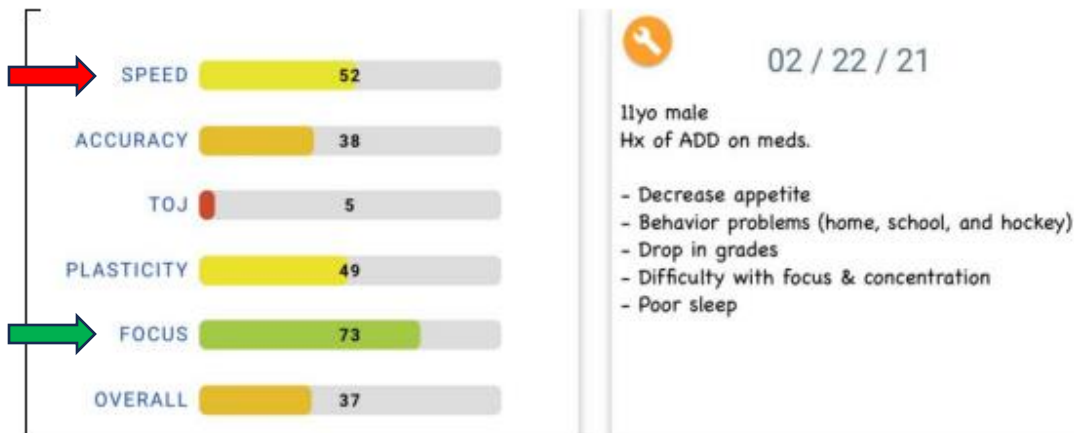
After



The Brain Gauge channel

Results from 3 individuals receiving IASIS microcurrent neurofeedback treatments.

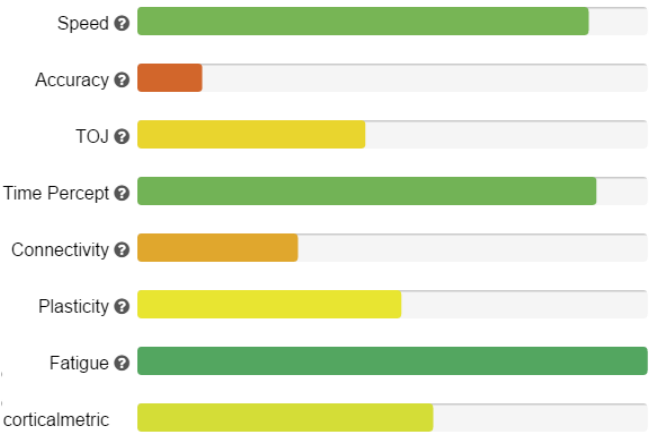
Low score remaining after multiple sessions suggests electrode exposure target executive function



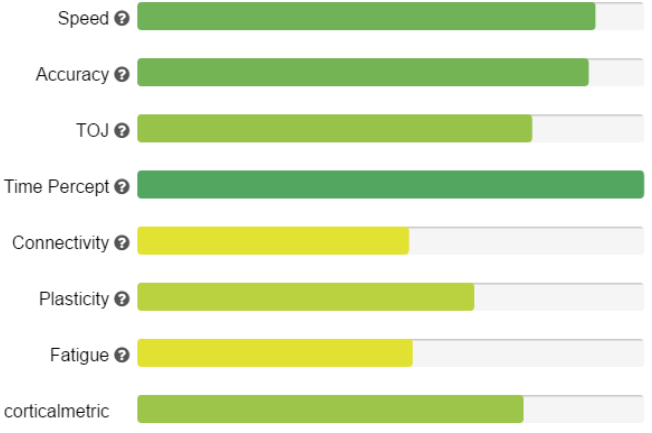
Concussion from facemask grab on Day 0. Passed ImPACT on Day 5. Cleared to play Day 11.



Day 2 – Failed ImPact



Day 5 – ImPact at baseline

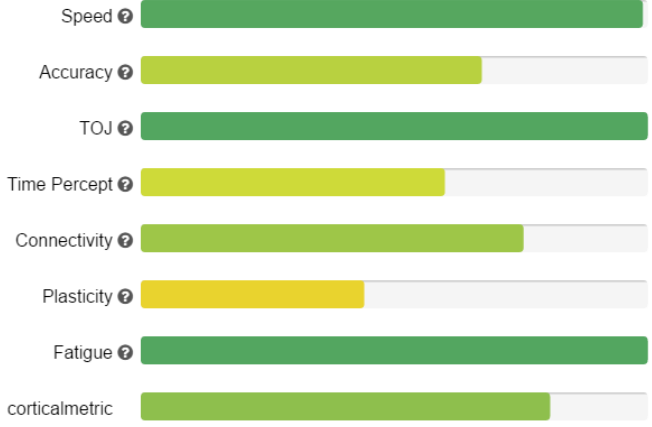


Non-compliant behavior (heavy alcohol consumption) days 13 & 14.

Day 11 - Cleared



Day 15 – non-compliant behavior



Detailed information in underlying metrics

Study: PCS patients treated with PEMF

Post-treatment



Patient #1 -

Group studies are essentially examination of the overall trends that a collection of case studies demonstrate.

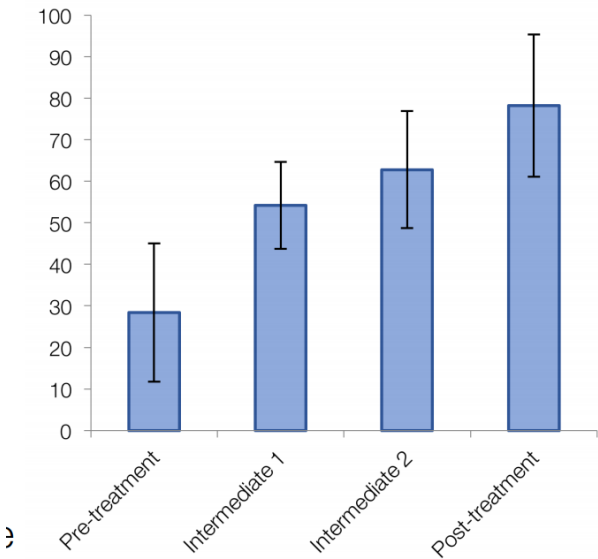
Research: Group studies

Group scores showed positive effects of the treatment

Patient #2

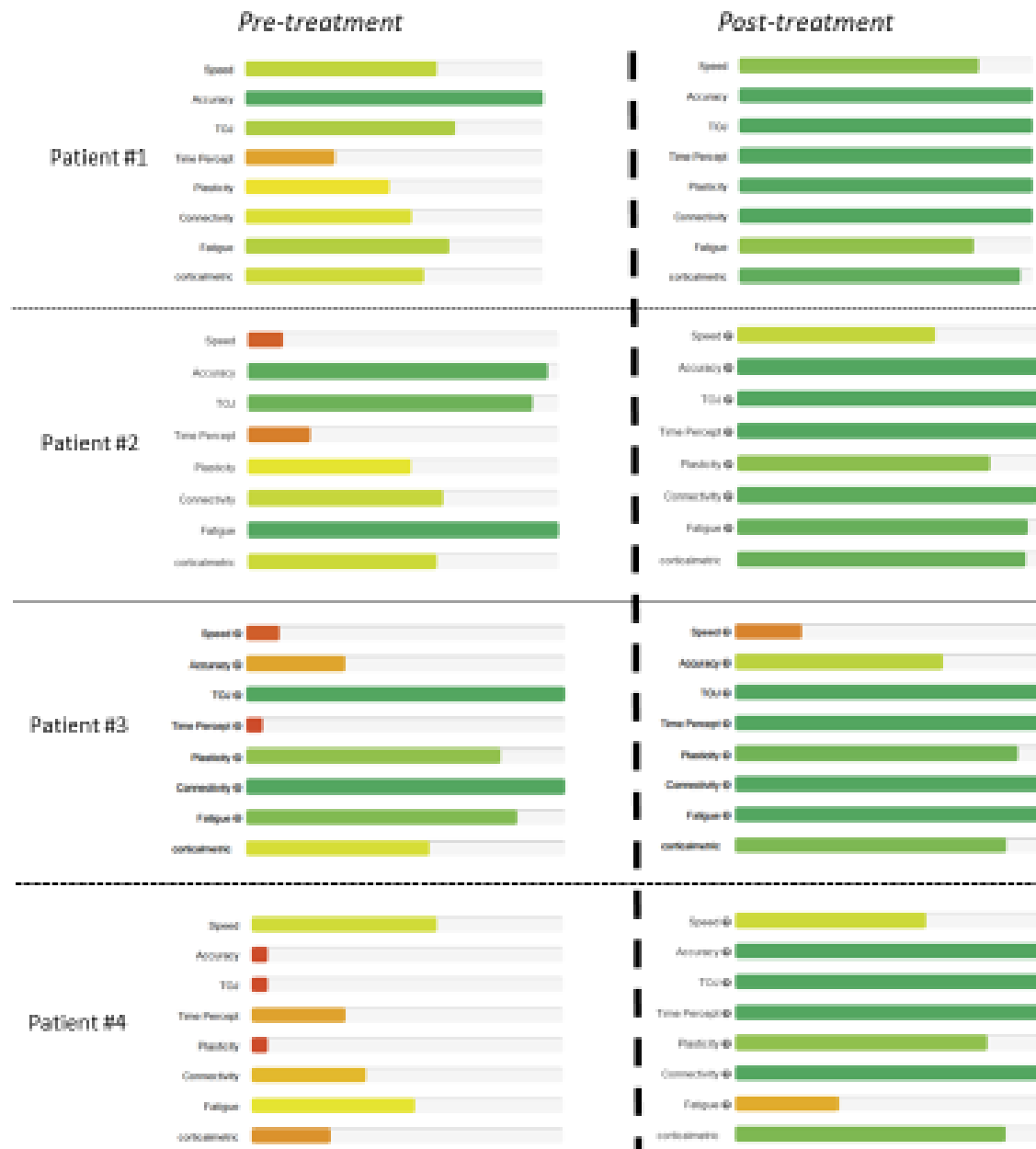
Patient #3

Patient #4



Note different rates of recovery for different patients – each receiving identical treatment

Assessing treatment efficacy: outcomes from 4 patients, 4 different clinicians



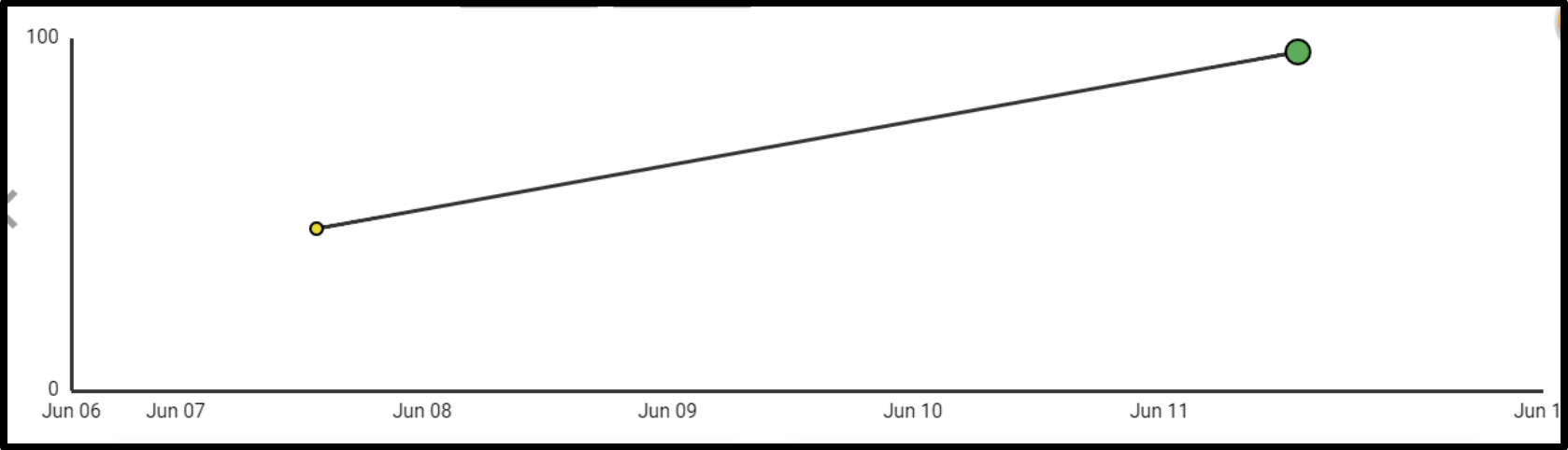
One way to examine treatment efficacy is to observe its impact across different patients at different clinicians using the same treatment (PEMF for head injury).

Note improvement in overall scores. In each case, the metrics matched the qualitative patient outcome.

Patients reported improvement, but scores validated neurological outcomes that resulted from treatment.

Treatment efficacy: consistency across clinics

Research: simple studies

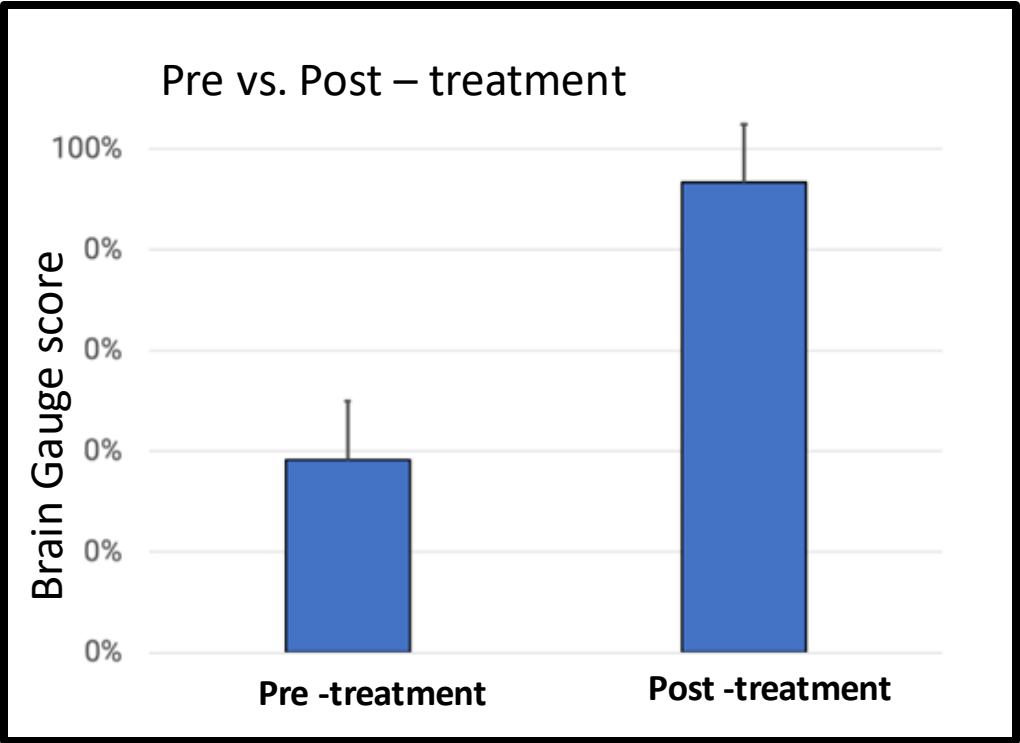


Brain Gauge scores improve with successful treatment of pain

Simple & quick studies can demonstrate treatment efficacy

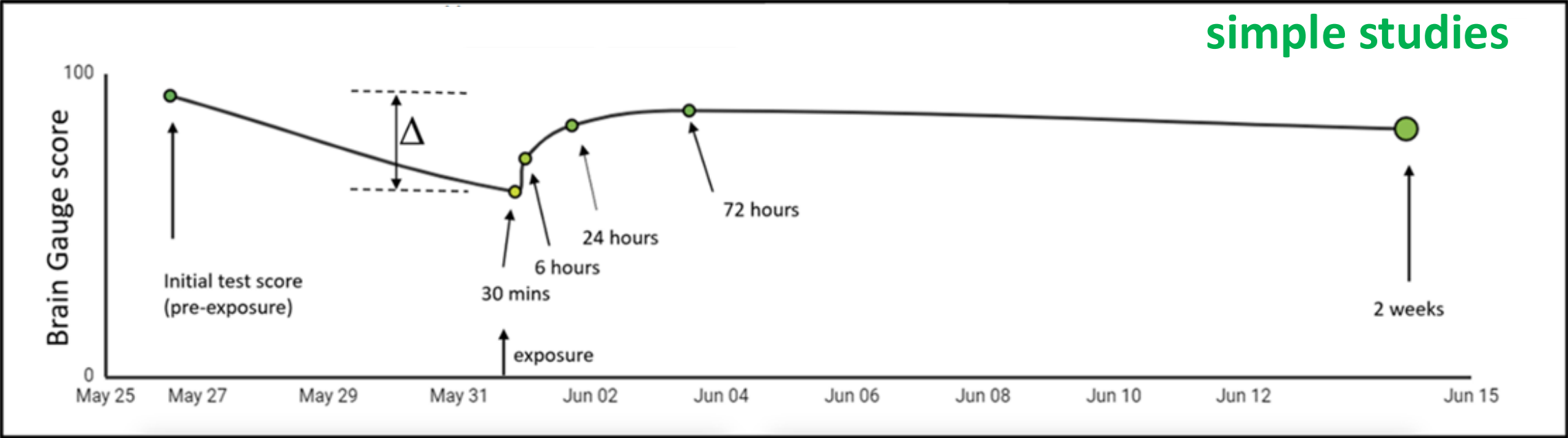


Results from group study (n=20) show same trend as individual



Observations across all individuals suggests sensitivity to sub-threshold exposures

Research: not so simple studies

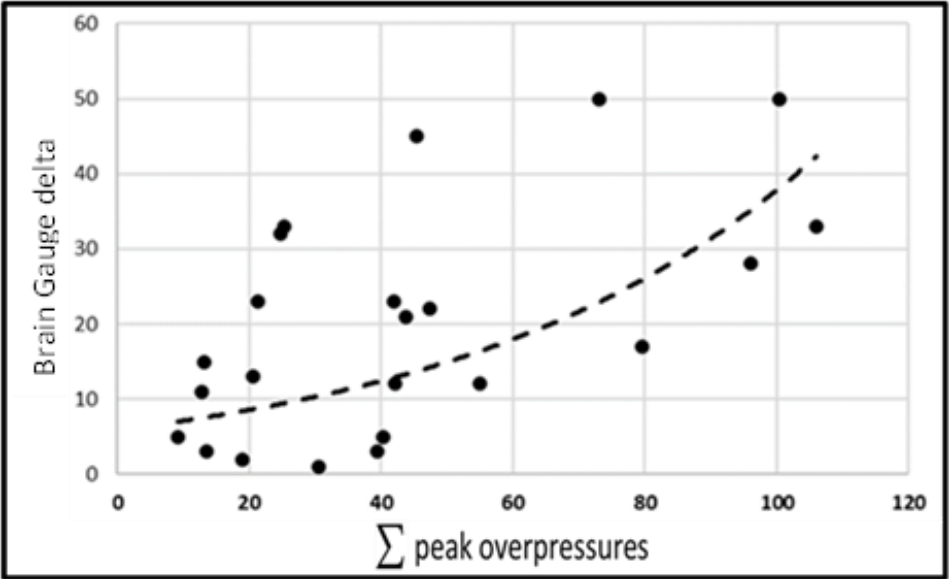


Comparison of average Δ with sum of peak OVPR suggests a trend of increasing deflection in Brain Gauge scores with increasing exposures. Variability is due to a number of factors including missed triggers and individual brain health history.

Average $\Delta = 12$ $p < 0.001$; Δ is maximal deflection in BG score (range from 0 to 100) for each individual.

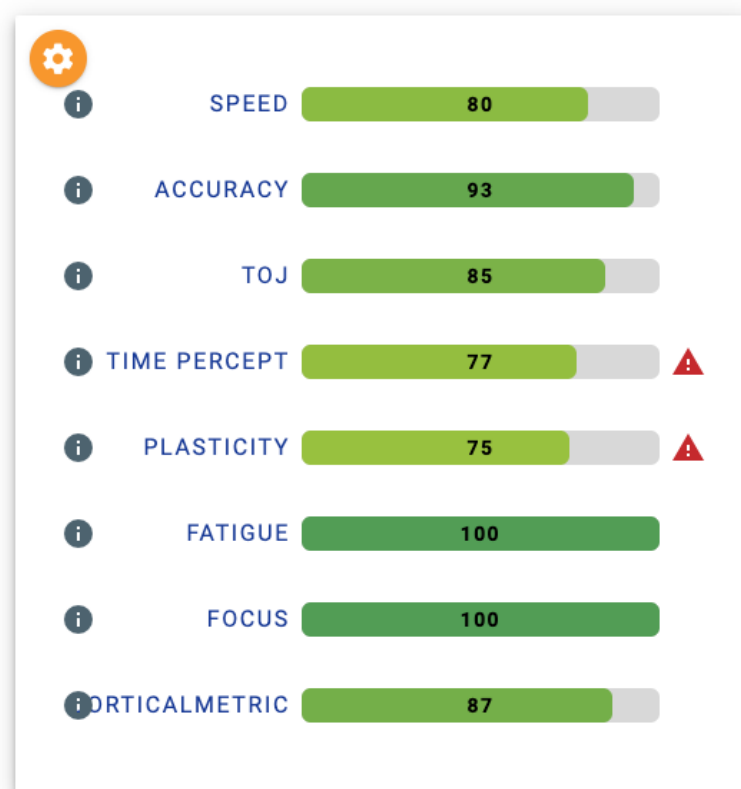
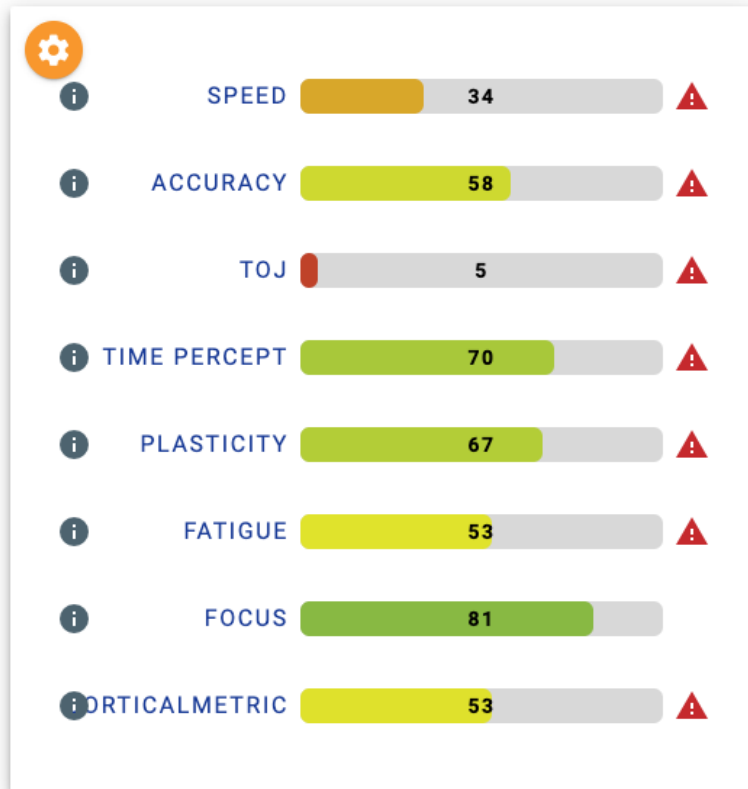
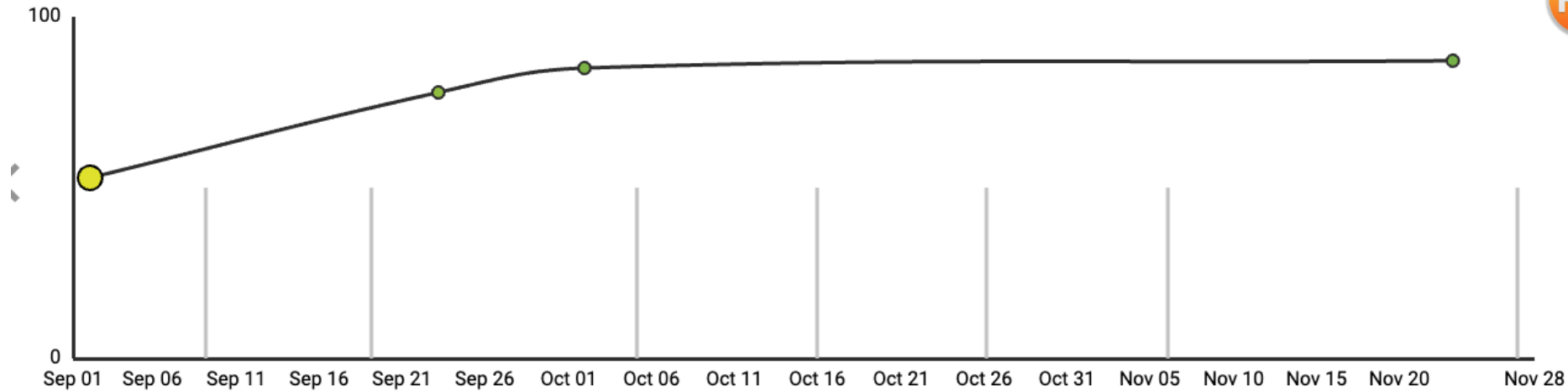
Events recorded – 1 individual

Location	Event #	Pk OVPR (ps)
Head	1	4.2
Chest	2	13
Head	2	4.1
Shoulder	2	7.7
Chest	3	4.8
Head	3	5.2
Shoulder	3	2.6
Chest	4	2.3
Chest	5	2
Chest	6	2.1
Head	6	2.7
Chest	7	5.8
Head	7	5.6
Shoulder	7	3
Chest	8	1.8
Head	8	11.4
Shoulder	8	2.7
Chest	9	6.49
Shoulder	9	4.31
Head	9	4.21
Sum		96.01



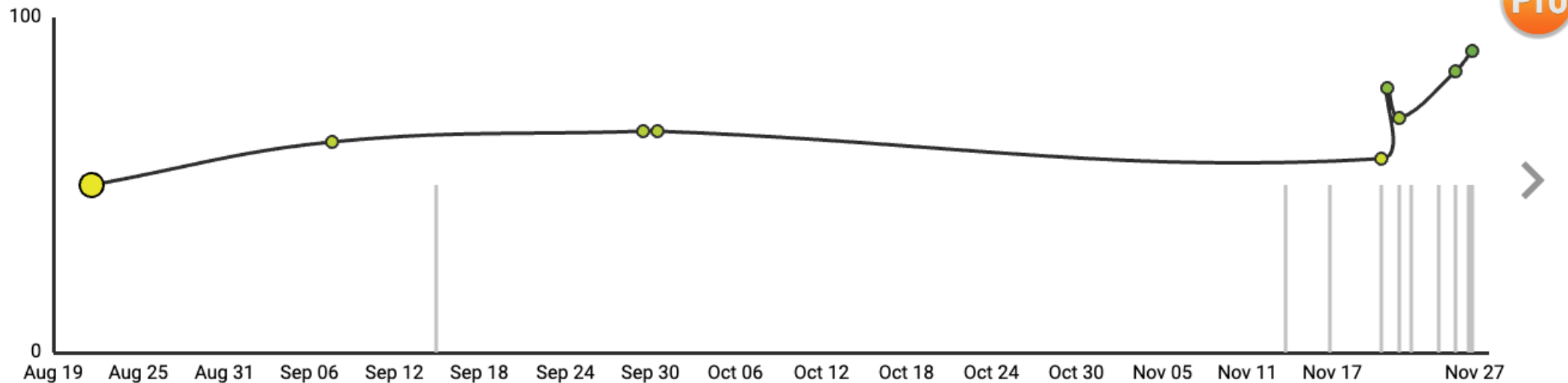
Case study: Combining brain training with microcurrent neurofeedback

Pro



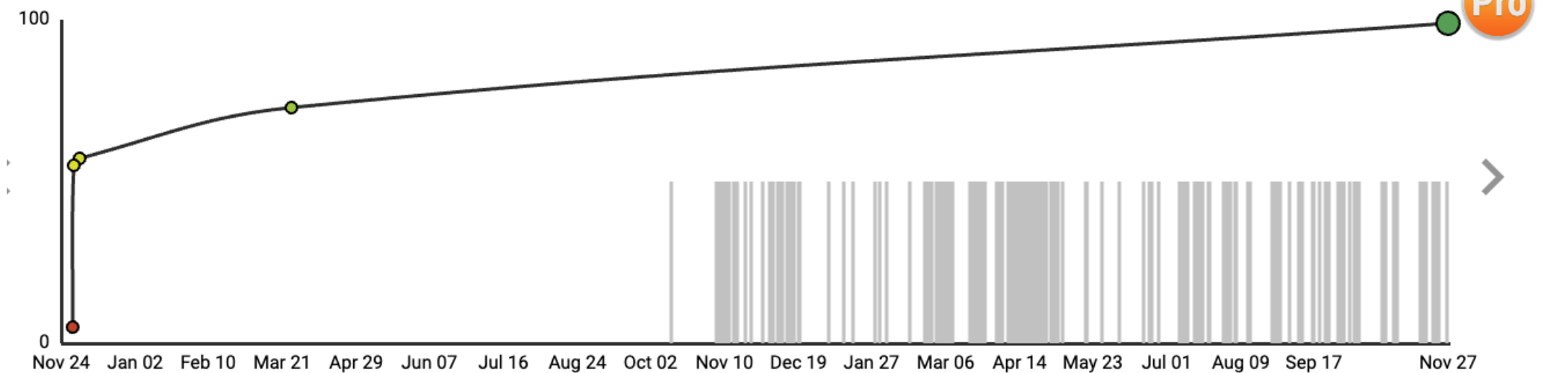
**Brain Training
complements
treatments**

Note improvement with increased frequency of brain training

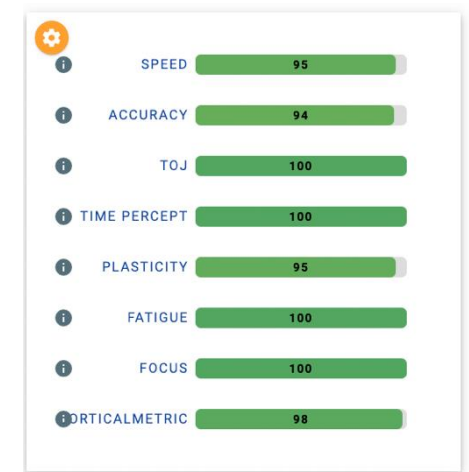
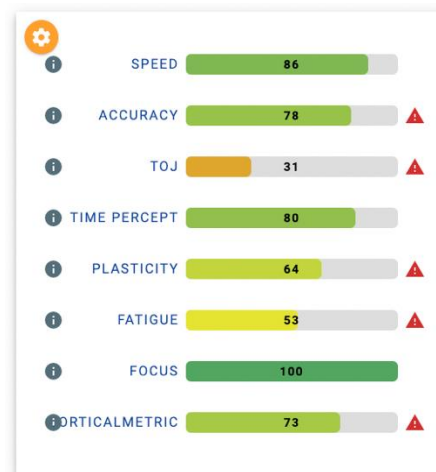
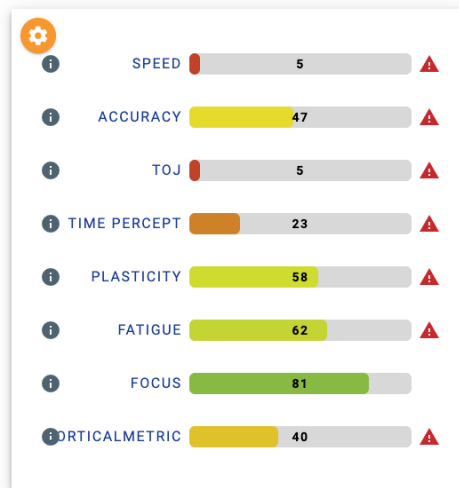
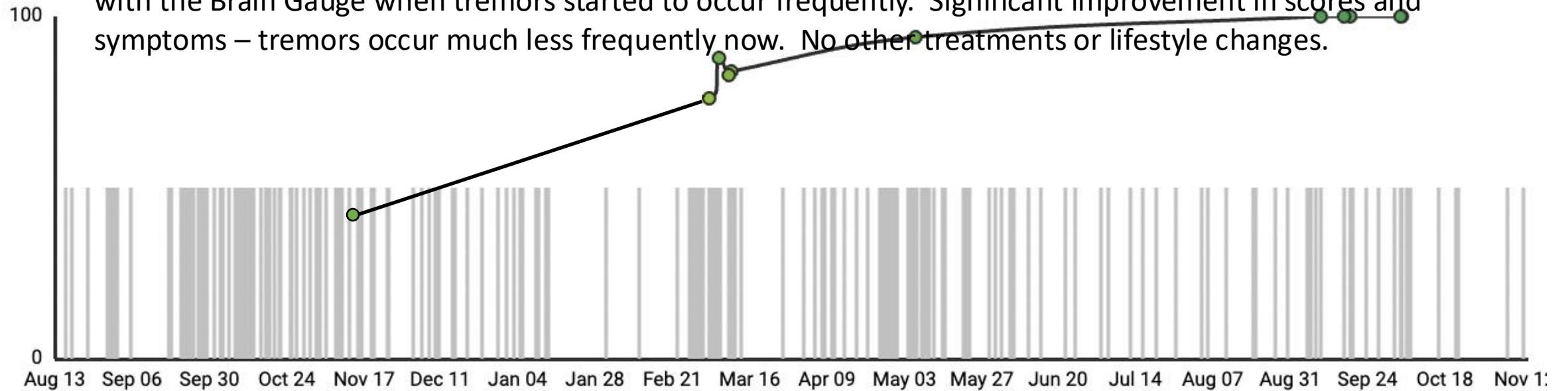


11/25/2022 - 11/26/2024

CORTICALMETRIC ▼



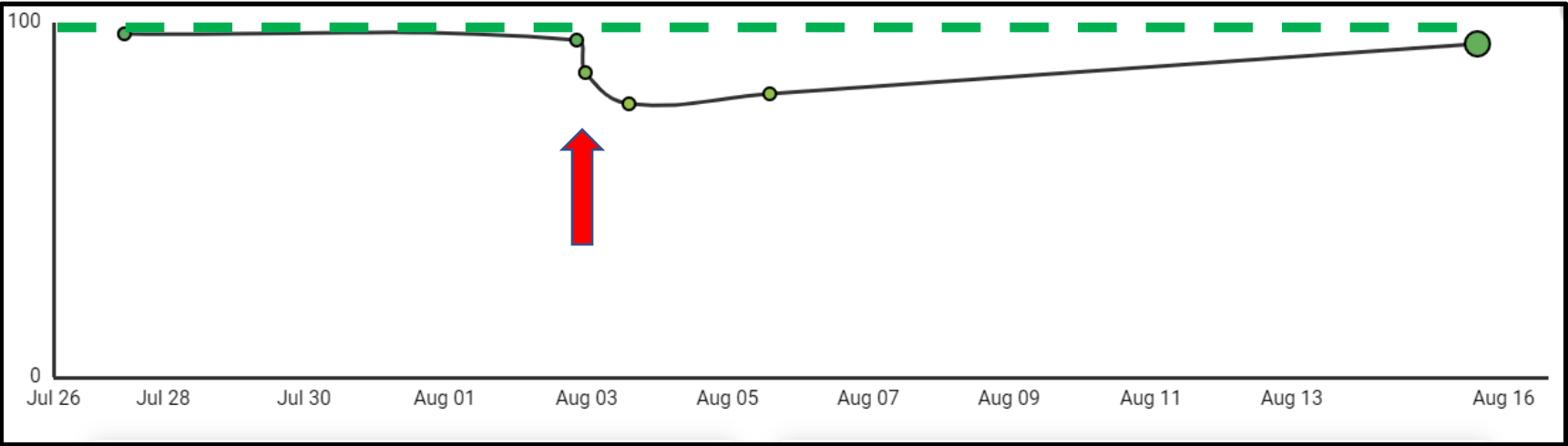
Case study. 64 year old female with history of Parkinson's and dementia in her family. Started training with the Brain Gauge when tremors started to occur frequently. Significant improvement in scores and symptoms – tremors occur much less frequently now. No other treatments or lifestyle changes.



ONR BLAST Program objective: Accurately measure the impact of blast pressure on brain health

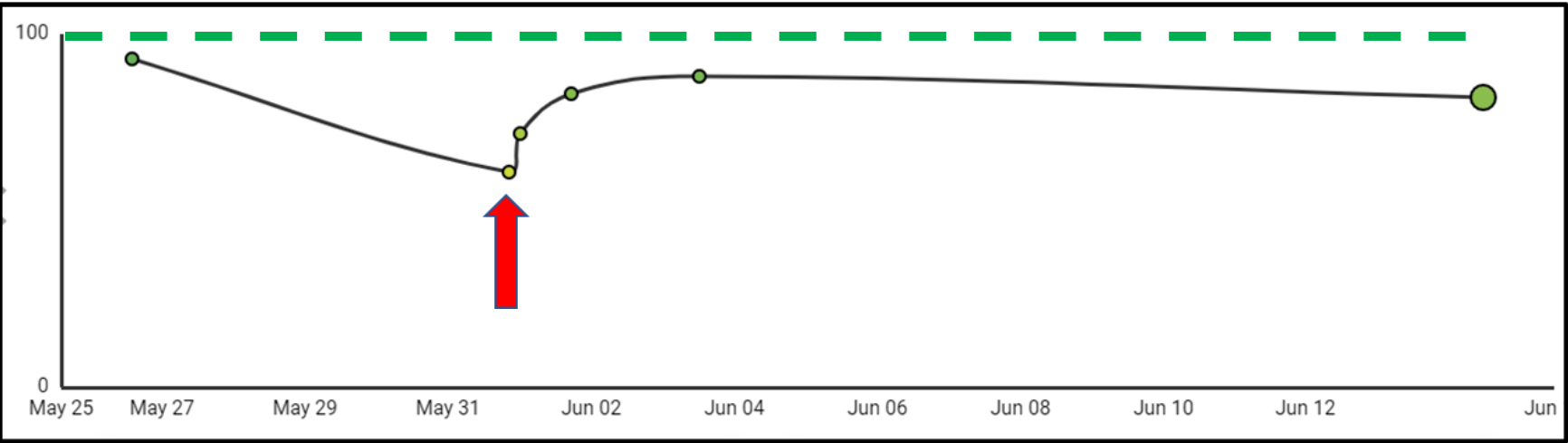


Optimal
brain
function →



Blast gauge sensors were used to identify sub-threshold (sub-concussive) blast exposure events (red arrows) conducted during heavy weapons training & Brain Gauge was used to track changes in brain function.

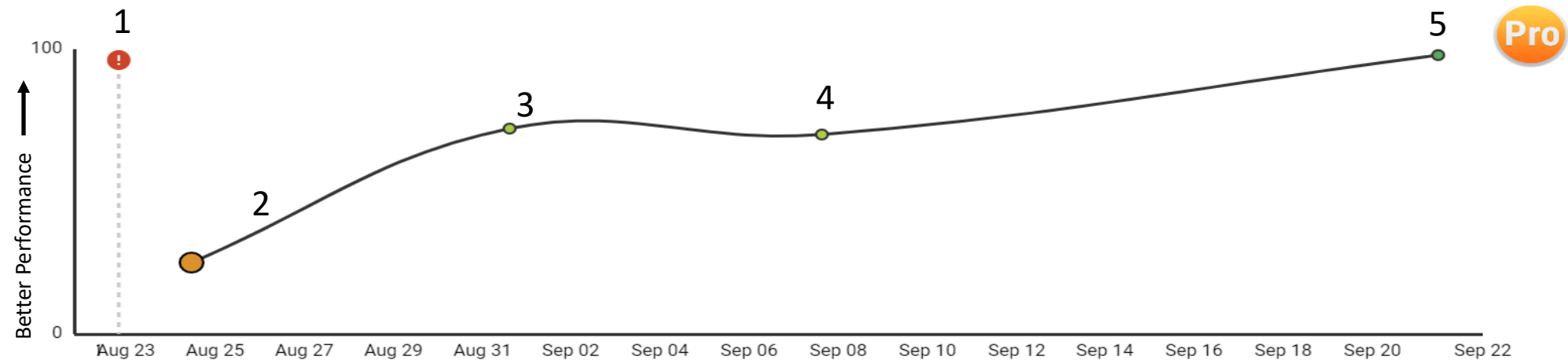
Optimal
brain
function →



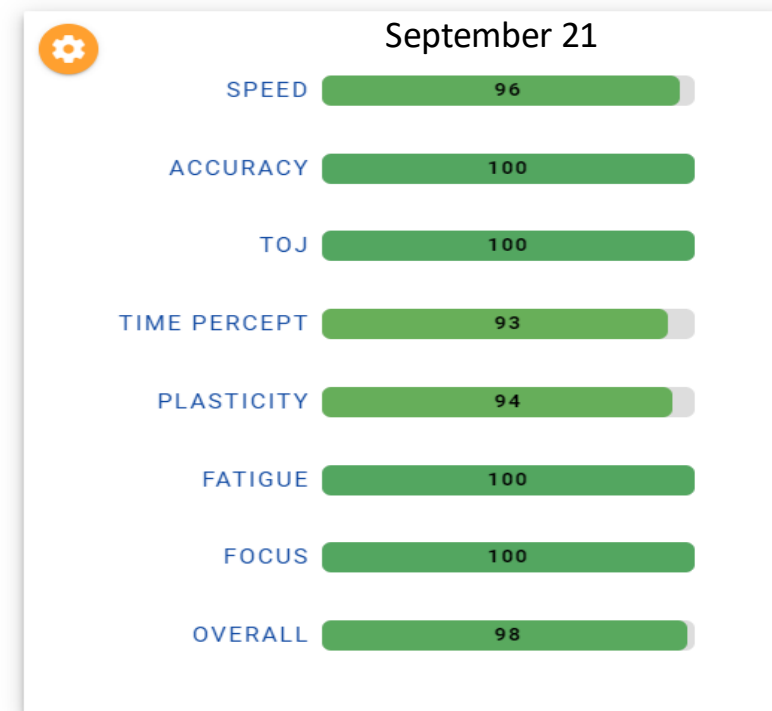
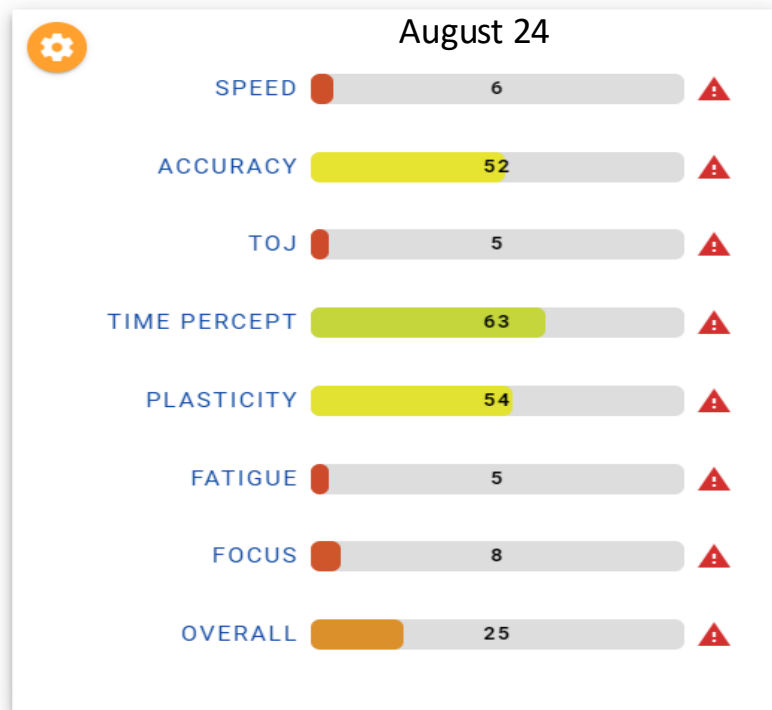
Impact and recovery rates vary from individual to individual with differences in exposures and brain health history. Note that time of peak impact on brain function typically varies between 30 minutes to 24 hours post-exposure.

Brain Gauge scores parallel observations from animal models; algorithm improved with human and animal observations

Case Study: Sports concussion – longer recovery period detected with the Brain Gauge



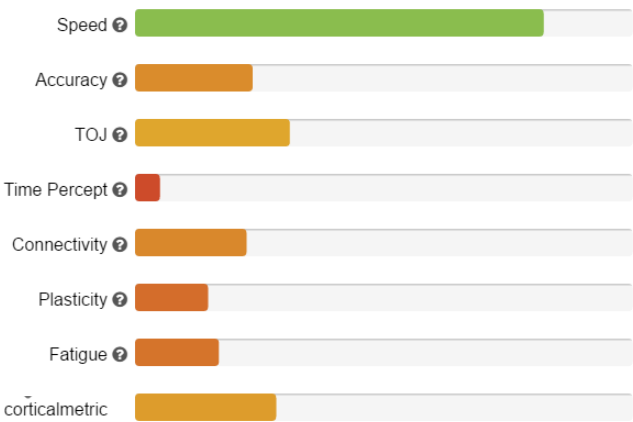
- 1 – injury
- 2 – cleared by BESS
- 3 – passed ImPACT
- 4 – average group (n-400) clearance by physician
- 5 - cleared



More case studies on the
Brain Gauge channel

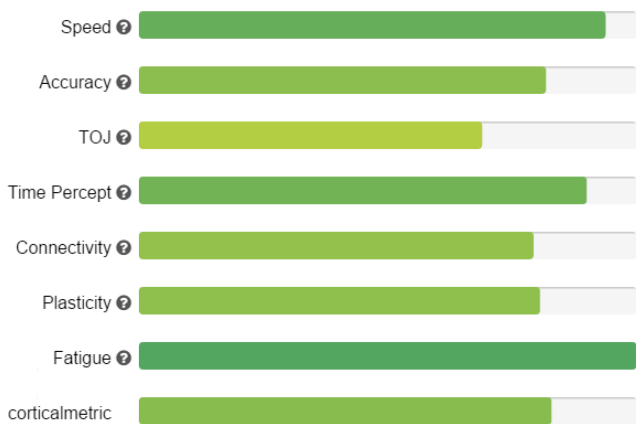
Case Study: Sports concussion & recurrent symptoms

Day 2: SCAT=11

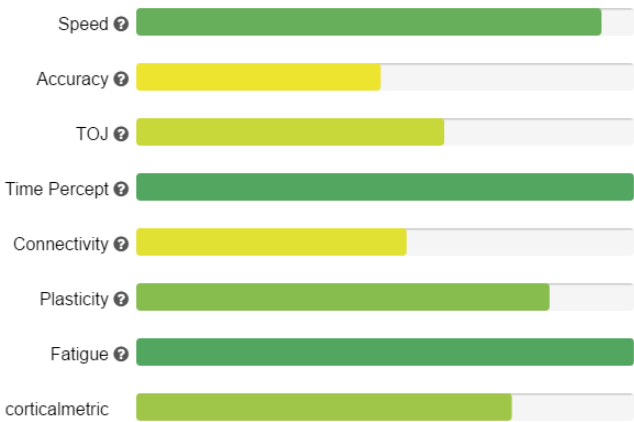


Individual (wrestler) suffered concussion on Day 0 (impact to left side of head). Symptom free 16 days post-concussion and was cleared. Re-tested 3 months post-recovery when symptoms returned.

Day 16: Symptom free

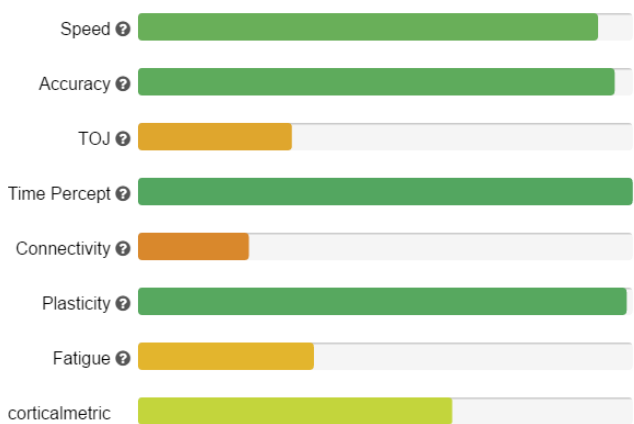


Day 9: SCAT = 3



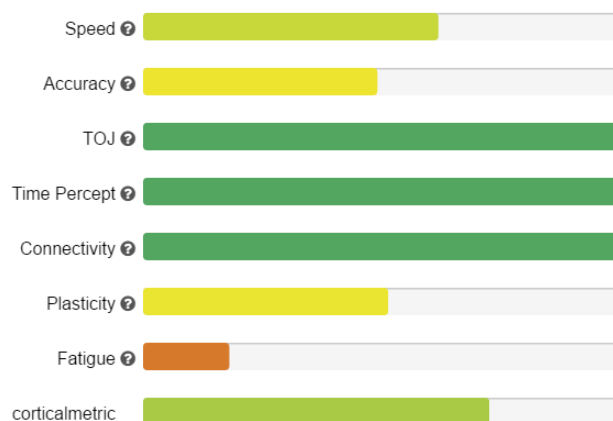
Note that higher numbers for SCAT indicate more symptoms

3 months post-recovery: complains of symptoms (headaches) returning

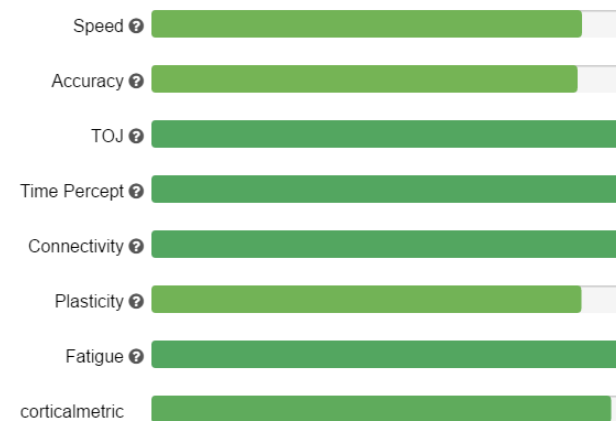


Case Study: sports concussion – longer recovery period for second concussion

Day 2: SCAT = 16



Day 16: symptom free



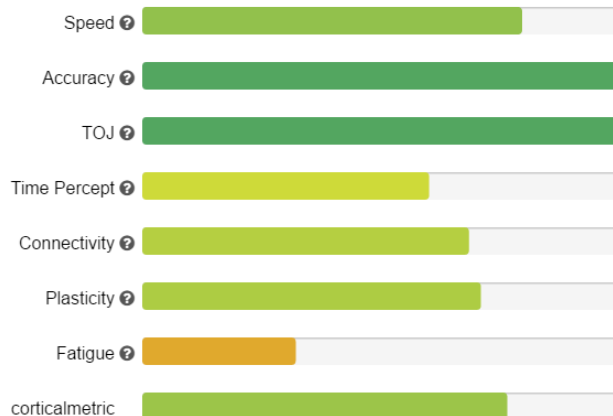
Note that 2nd concussions typically have more significant impact and longer recovery trajectories than first injuries

Individual had sports related concussion (football) early in the season and took 16 days to clear,

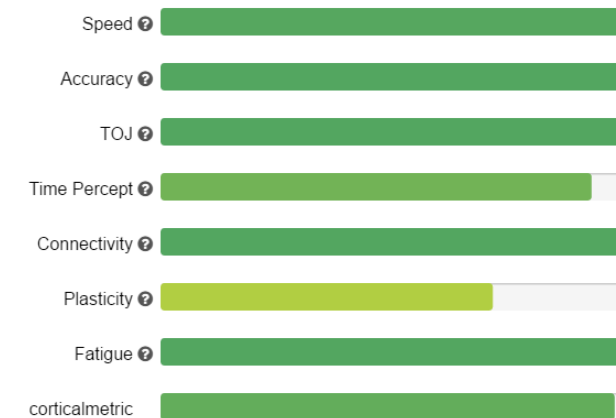
1 month after 1st concussion was cleared, individual had another injury. Symptoms were worse and recovery time was much longer.

2nd concussion (1 month after 1st concussion) took 4 months for full recovery

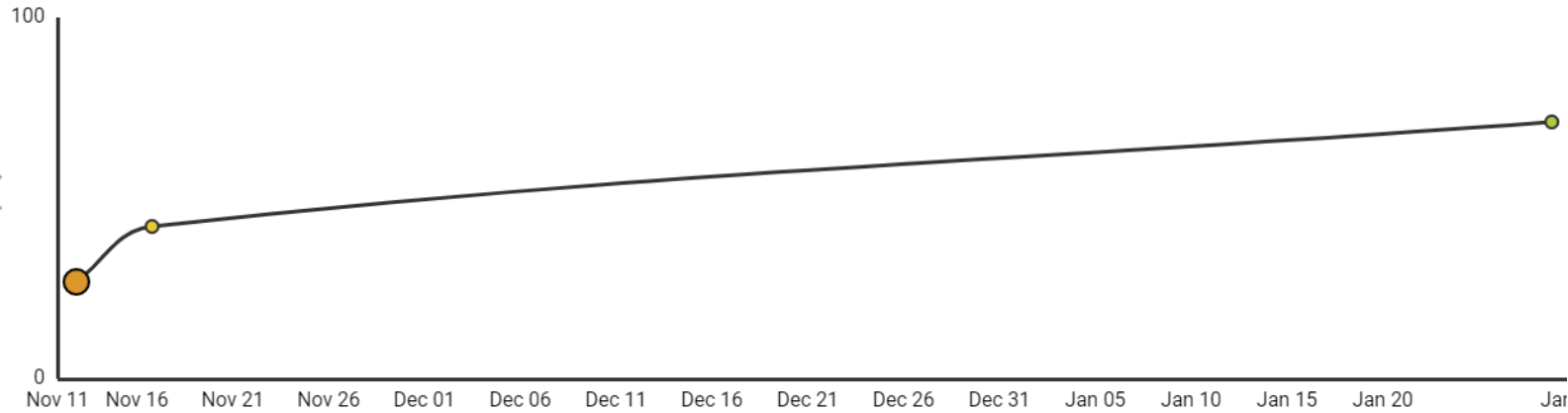
Day 2: SCAT = 31



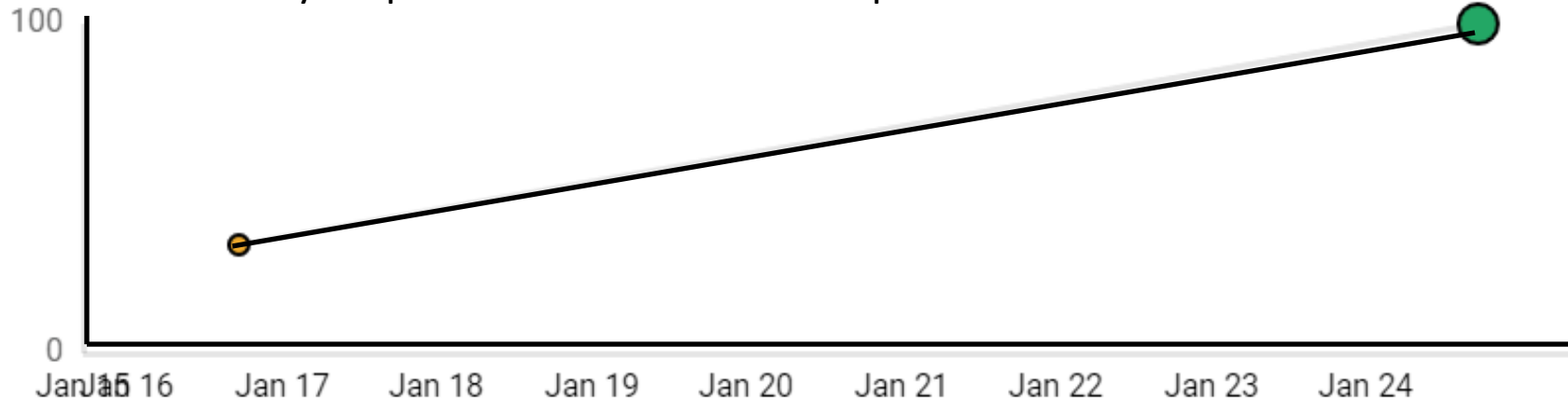
4 months: symptom free



Case study: Improvement in cervical pain with PEMF



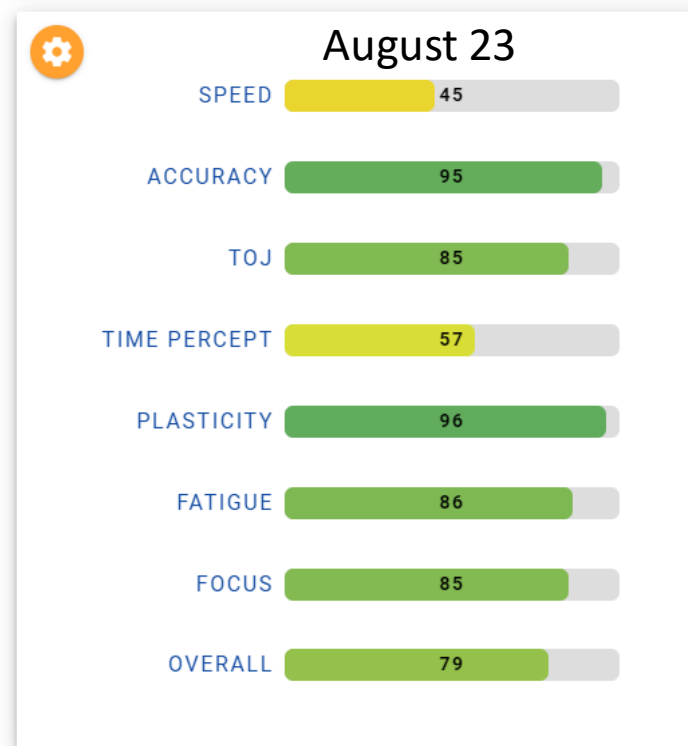
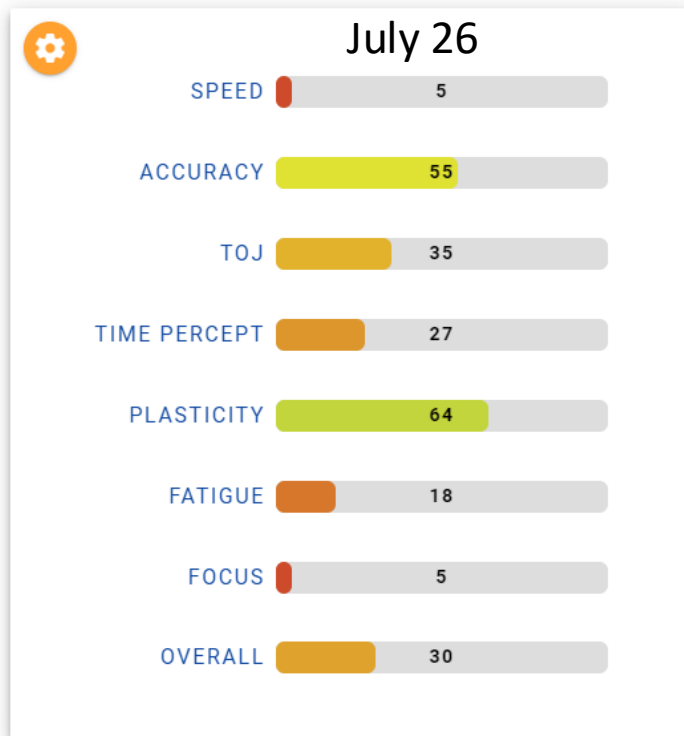
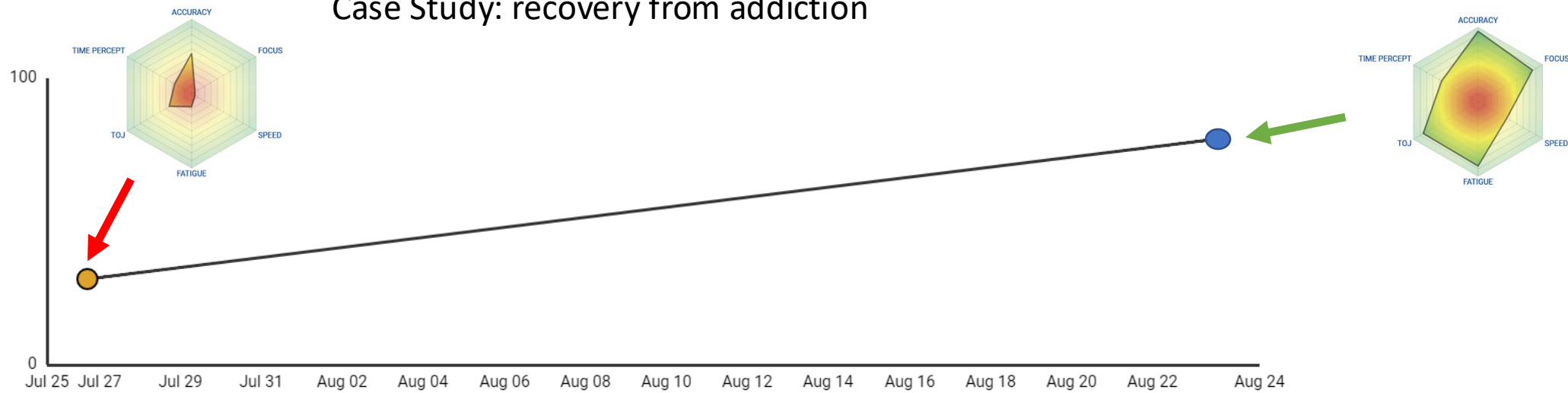
Case study: Improvement in lumbosacral pain after PEMF.



**Brain Gauge can
provide an objective
way to track pain**



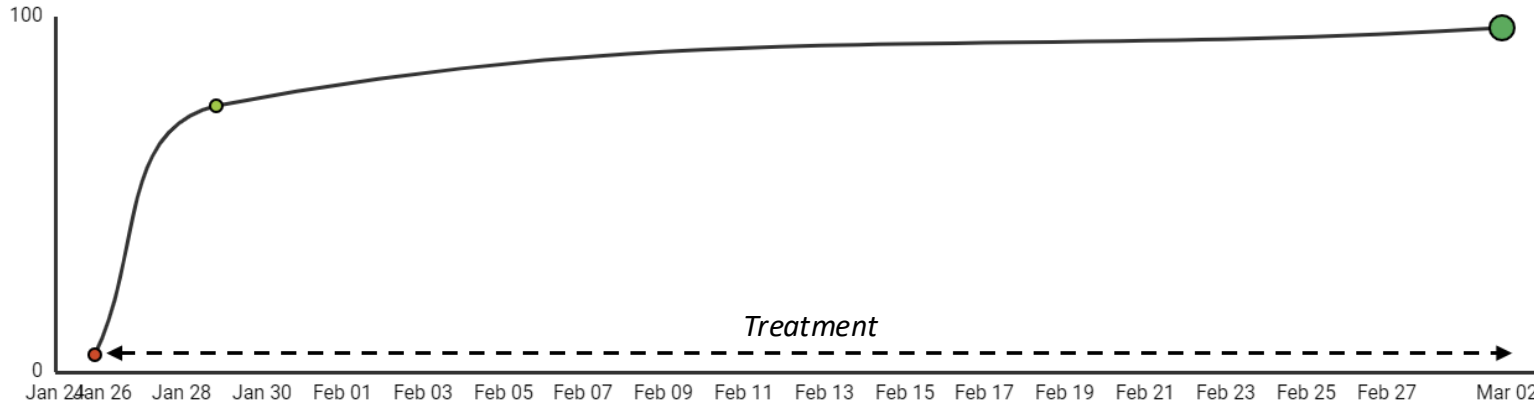
Case Study: recovery from addiction



Treatment: *IASIS*
microcurrent neurofeedback



Case Study



Patient received weekly IASIS treatments and at the time of final treatment, was performing exceptionally well. Eating disorder and drinking in check.

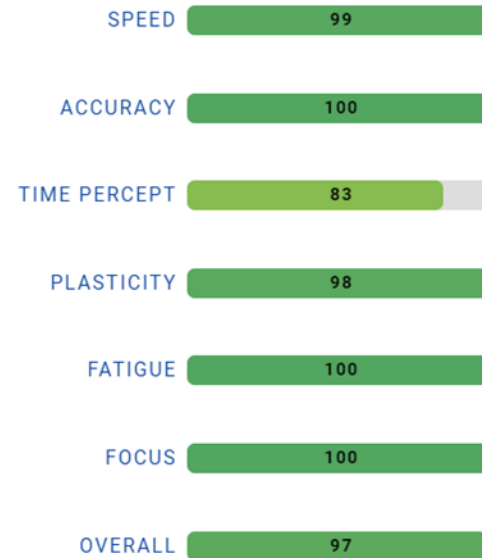
Initial patient conditions

Professional with a high stress lifestyle. Eating disorder and excessive drinking problematic. Chronic pain could also be a factor.

Initial Brain Gauge scores very poor. Showed some improvement after 2 sessions, but not enough to warrant discontinuing treatment.

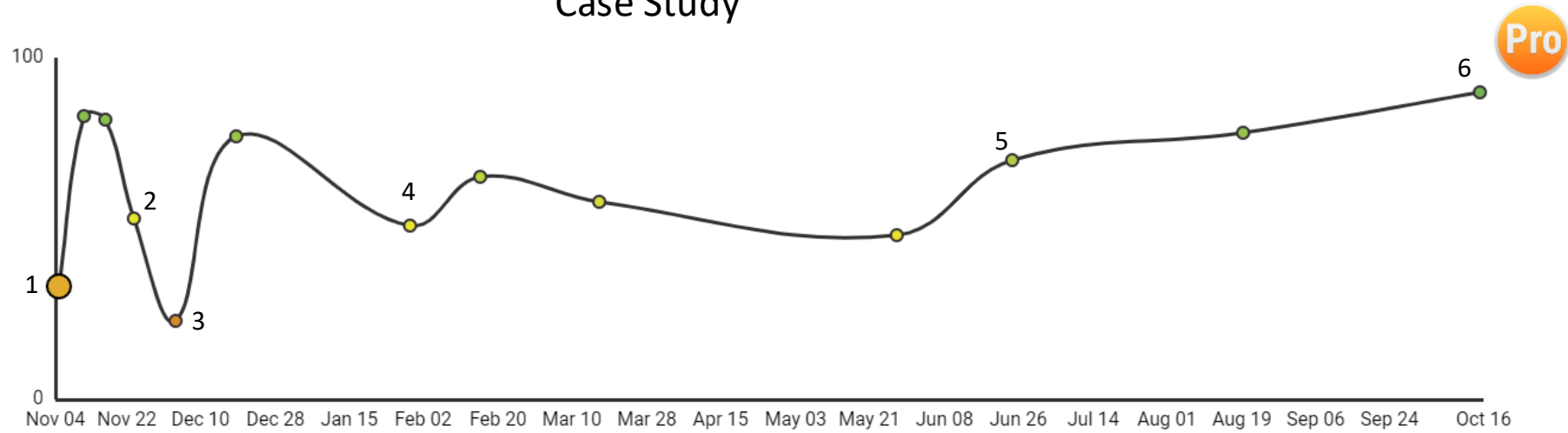


Post-treatment

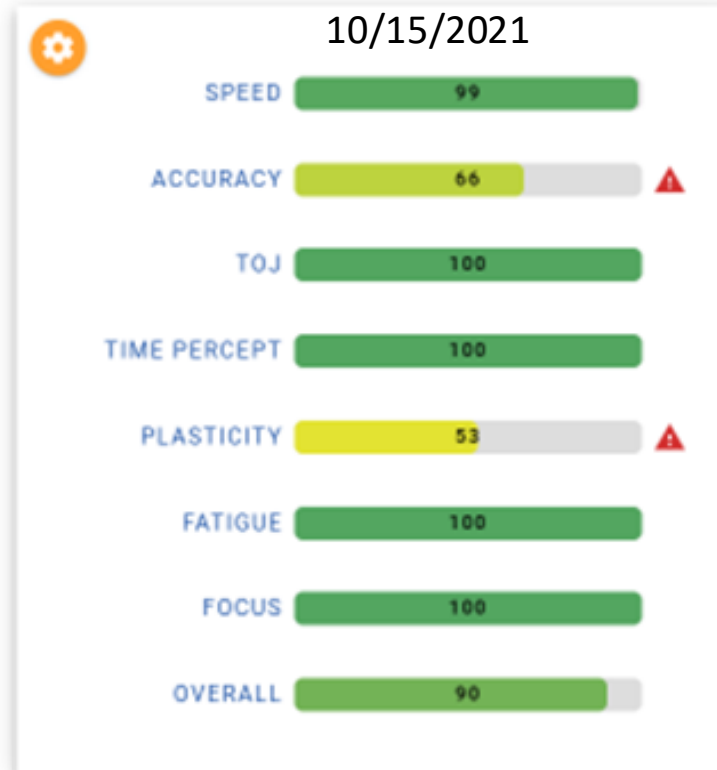
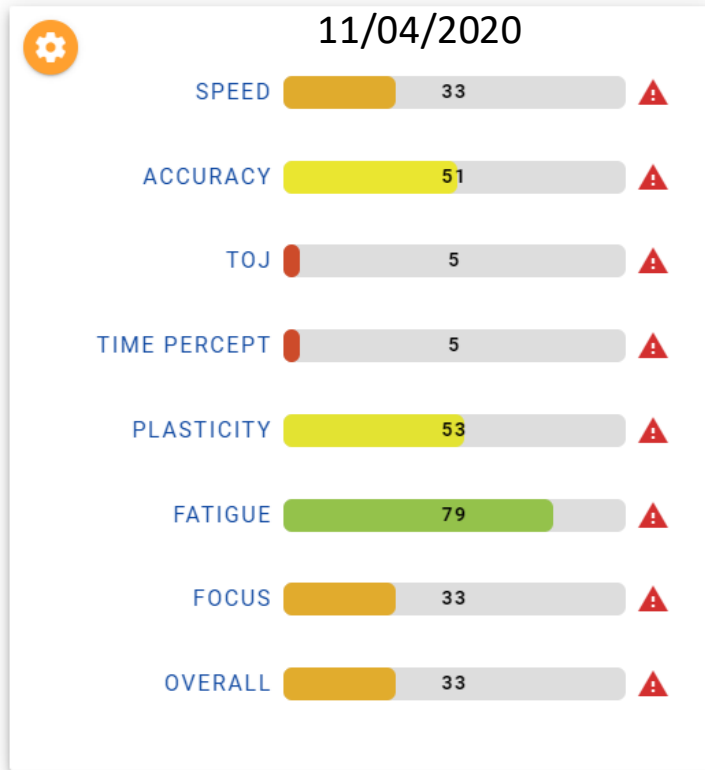


Treatment: *IASIS microcurrent neurofeedback*

Case Study



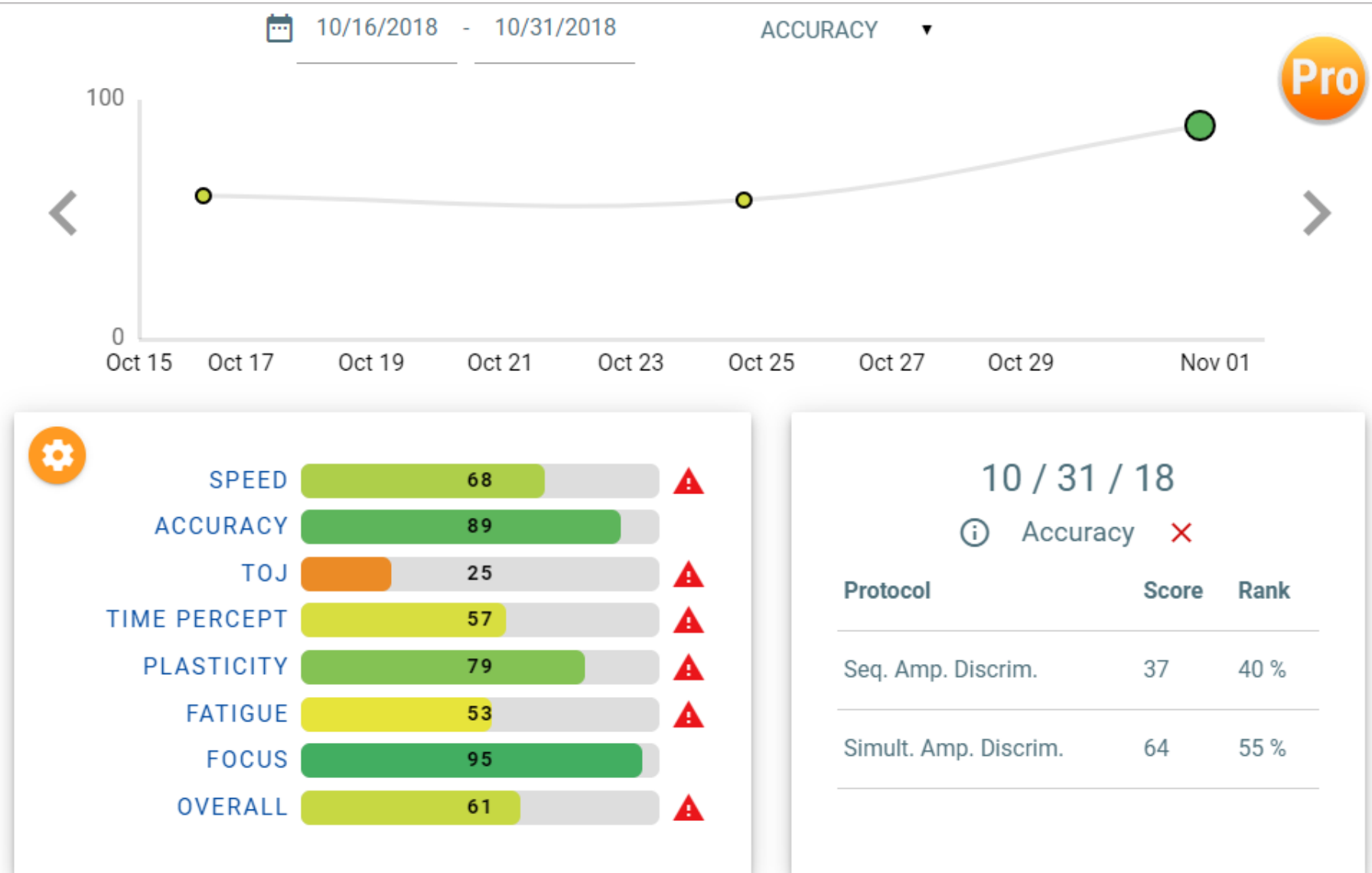
- (1) Pre-treatment
- (2) Missed medication
- (3) MOC visitation
- (4) MOC visitation
- (5) Sleepover
- (6) Reduced treatment started



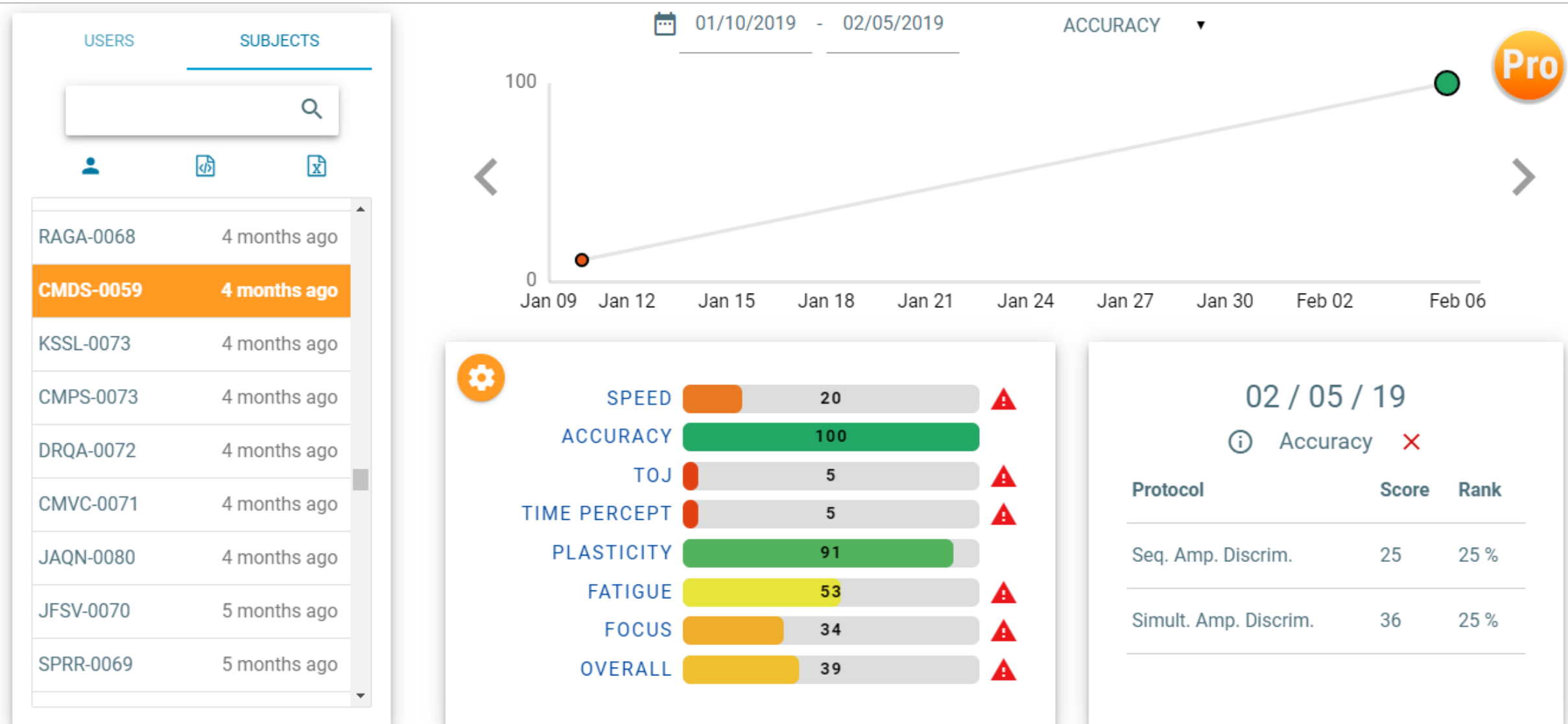
Treatment: *IASIS
microcurrent neurofeedback
at Neurocraft*

Access Bars also helps with pain management (lumbosacral pain below).

USERS		SUBJECTS	
		  	
GILN-0044	7 months ago		
REBV-0031	7 months ago		
JCIP-0021	7 months ago		
EAHA-0015	7 months ago		
MCCC-0045	7 months ago		
AGAM-0001	7 months ago		
ANST-0028	8 months ago		
HCBC-0016	8 months ago		
GGLB-0041	8 months ago		



Multiple sessions with PEMF leads to improvement in Brain Gauge scores



Before

After



The Brain Gauge channel

Results from 3 individuals receiving microcurrent neurofeedback treatments.



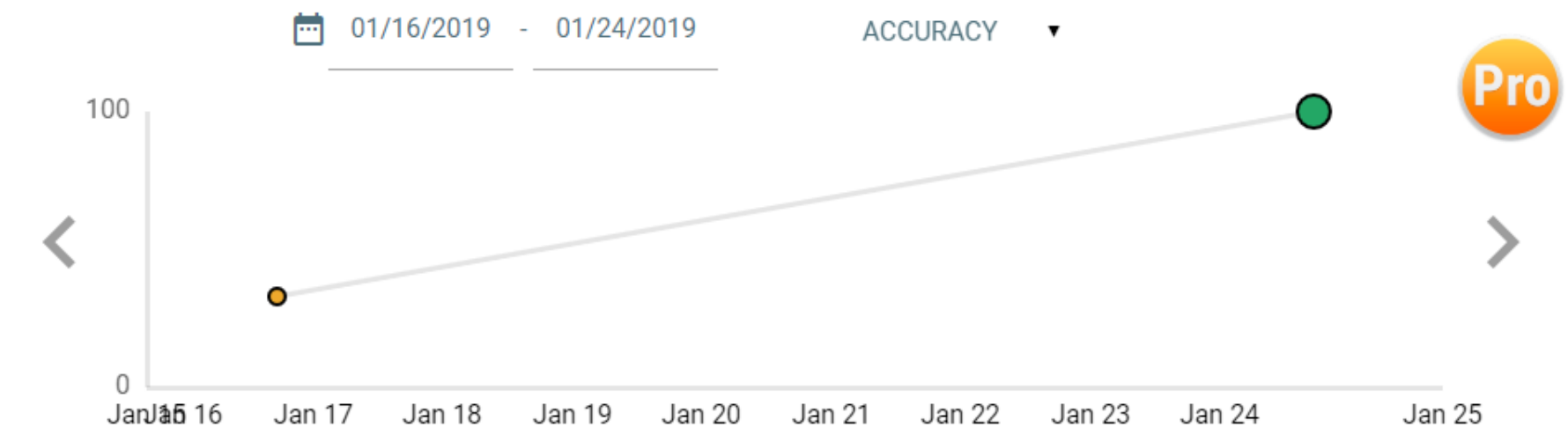
Note improvement in the score that parallels reduction of lumbosacral pain after PEMF.

USERS

SUBJECTS

Q

SPRR-0069	5 months ago
RSQP-0047	5 months ago
MCHU-0001	5 months ago
SGRM-0061	5 months ago
ECCD-0023	5 months ago
SOBS-0067	5 months ago
DONA-0066	5 months ago
ABCD-0006	5 months ago
LGRC-0079	5 months ago
XERV-0061	5 months ago

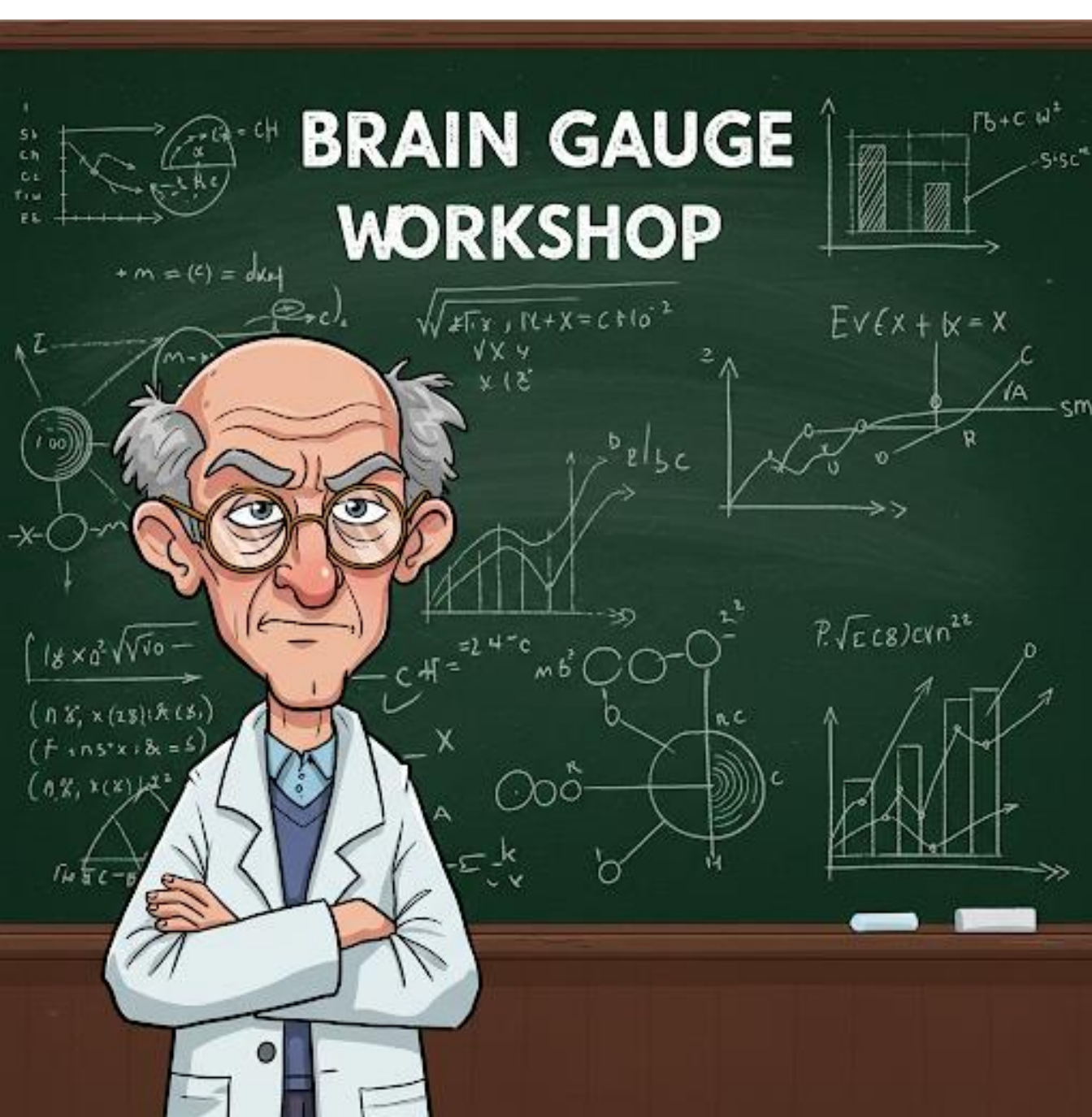


SPEED	32	!
ACCURACY	100	
TOJ	31	!
TIME PERCEPT	100	
PLASTICITY	97	
FATIGUE	40	!
FOCUS	58	!
OVERALL	61	!

01 / 24 / 19

i Accuracy X

Protocol	Score	Rank
Seq. Amp. Discrim.	25	25 %
Simult. Amp. Discrim.	28	15 %



Best way to learn about the Brain Gauge is the Brain Gauge Workshop!

“Dr. Tommerdahl spent a full day with our staff explaining not only of the foundations of the Brain Gauge, but fundamentals of neuroscience that led to enormous improvements in patient care. Use of the Brain Gauge has made our patients more aware of their progress and literally puts their brain health into their own hands. ”

Carrie Meyer, Director, Okoboji Wellness Clinic.

More information:

Website: www.corticalmetrics.com

120+ publications at www.corticalmetrics.com/publications

Easy to read articles at insights.corticalmetrics.com

Videos at The Brain Gauge Channel on Youtube

Grumpy Science videos: grumpyscience.fluxhealth.co

Questions? Email: info@corticalmetrics.com

Free consults at: <https://calendly.com/marktommerdahl>